

**EXAMINING THE RELATIONSHIP BETWEEN PARENTING STRESS, DEPRESSIVE
SYMPTOMS AND SELF-RATED HEALTH AMONG AFRICAN AMERICAN
FATHERS**

by
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ABSTRACT

Background. African American men continue to experience gross and persistent disparities in social, economic, and physical health outcomes. Stress has been identified as a public health problem and a contributor to adverse health outcomes and health disparities. The purpose of this study is to examine how parenting stress affects the health of African American fathers and consider the influence of various factors on the relationship between parenting stress and African American fathers' health outcomes.

Method. Using the Parenting Stress Model and data from the Fragile Families and Child Wellbeing Study, a sample of 965 African American fathers was utilized for study. Logistic regression models examined the odds of current depressive symptoms and poor/fair self-rated health (SRH) and the modifying effects of co-parenting quality. Current depressive symptoms were measured using questions from the Composite International Diagnostic Interview-Short Form (CIDI-SF), SRH was assessed as either poor/fair or good/very good/excellent, co-parenting quality was measured using 6 items to assess the father's perception of trust, respect, and support from and communication with the mother, and parenting stress was assessed using four aggravation in parenting questions.

Results. Findings from the study revealed that the majority of African American fathers reported some degree of parenting stress, however overall findings did not show parenting stress was associated with current depressive symptoms (OR: 1.14; CI: 0.80, 1.64) or poor/fair SRH (OR: 1.26; 95% CI: 0.96, 1.65). Findings also revealed that that co-parenting quality had neither moderating effects on the relationship between parenting stress and depressive symptoms (OR: 0.99; 95% CI: 0.90, 1.09) nor on the relationship between parenting stress and poor/fair SRH (OR: 1.05; 95% CI: 0.97, 1.13).

Discussion. The current study showed that African American fathers, like other groups of parents, experience parenting stress, depressive symptoms, and lower reports of subjective health. Although no significant findings were reported, the need to explore deeper and understand better the context that surrounds and the factors that influence those experiences is needed to adequately address the parenting and health needs of African American fathers. Public health and practice implications along with additional research recommendations are discussed.

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CHAPTER 1: INTRODUCTION

1.1 PUBLIC HEALTH PROBLEM

The health of African American men has become a national focus due to the gross and persistent disparities seen in social, economic, and physical health outcomes (Witt, 2006; Xanthos, 2010; Wilson-Frederick, 2014; DHHS, 2011). Recent reports show that African American men continue to have higher rates of incarceration (BJS, 2014), unemployment (BLS, 2016), deaths due to cardiovascular disease and stroke (CDC, 2013), and higher overall cancer incidence and mortality as compared to White men (CDC, 2016). African American men also have higher rates of diabetes and hypertension (CDC, 2013). Despite experiencing the greatest increase in life expectancy in 2011-2012, African American men overall still have lower life expectancies as compared to their Hispanic and White counterparts (Arias, 2016).

Stress has been identified as a public health problem and a contributor to adverse health outcomes (McCurley, 2015; Sellers, 2012) and health disparities (Almeida, 2005; Lantz, 2005; Kaplan, 2013; Mwendwa, 2011; Pearlin, 2005). Parenting stress is one type of stress that has distinguishable features compared to other forms of stress (Deater-Decker, 1998) and has been linked to early onset hypertension (Wickrama, 2001) and lower measures of self-rated health (SRH)(Lantz 2005; Schytt, 2011).

Single parenthood and low socio-economic status have been associated with more parenting strain as compared to dual parenting and higher income groups (Umberson, 2010). In 2013, the percent of children born to unmarried parents declined from a peak of 41.0% in 2009 to 40.6%, however, the non-marital birth rate among Black women was almost double that found among White women (Curtin, 2014) with over 70% of births among Black women occurring in non-marital unions (Martin, 2017). In addition, while the percent of non-marital births increased among cohabiting unions (Curtin, 2014), over 60% of non-marital relationships in fragile family

populations dissolve within the first five years after a child's birth, with African American couples more likely than White couples to undergo this transition (McLanahan, 2010). In addition, this rate increased to 73% if the African American couple was not living together at the time of the child's birth. With a high percent of births occurring to unmarried African American parents, a higher rate of relationship dissolution, and a poorer health trajectory for African American men, the risk and potential consequences of parenting stress is high.

The purpose of this study is to examine how parenting stress affects the health of African American fathers and consider the influence of various factors on the relationship between parenting stress and African American fathers' health outcomes. Few studies to date have looked at parenting stress in minority men (Bronte-Tinkew, 2010b; Baker, 2014; Fagan, 2007), and while Hernandez (2012) examined parenting stress and health outcomes in urban fathers, no studies have been found that have looked at parenting stress and the health of African American fathers specifically.

1.2 CONCEPTUAL FRAMEWORK

Abidin and Burke developed The Parenting Stress Model as a guide for the construction of a Parenting Stress Index (PSI), a tool designed to empirically evaluate the pathways suggested to contribute to dysfunctional parenting and child outcomes, with stress as the central construct (Abidin, 1990; Abidin, 1992). The PSI is a 101-item self-report instrument that provides a total parenting stress score achieved from combining scores obtained from evaluating items in both a parent domain and a child domain (Abidin, 1989).

The Parenting Stress Model suggests that parenting behavior is influenced by multiple sociological, environmental, behavioral, and developmental factors (Abidin, 1992). Parental stress is denoted as function of three domains- parent characteristics, child characteristics, and demographic or situational characteristics, such as work, environment, marital relationship, daily

hassles, and life events (Abidin, 1992). A central part of the model that leads to parenting stress lies within the parental characteristic domain and entails the interaction between the commitment to the parental role and the parent's appraisal of the harm or benefit associated with presenting stressors housed in the other domains (Abidin, 1992).

The Parenting Stress Model is deemed suitable to address the study's focus on parenting stress in African American fathers as this framework has commonly been used to look at parenting stress in other populations (Golfenshtein, 2016; Ponnet, 2013; Kim, 2015; Oddi, 2013). In addition, while the Parenting Stress Model was created to demonstrate the suggested pathways that contribute to dysfunctional parenting and child outcomes, this study will adjust the model to demonstrate the suggested pathway that parenting stress is associated with father outcomes, depressive symptoms and SRH reports. In addition, the model will serve as a framework to examine the moderating effect of co-parenting quality on the relationships between parenting stress and depressive symptoms and between parenting stress and SRH in African American fathers.

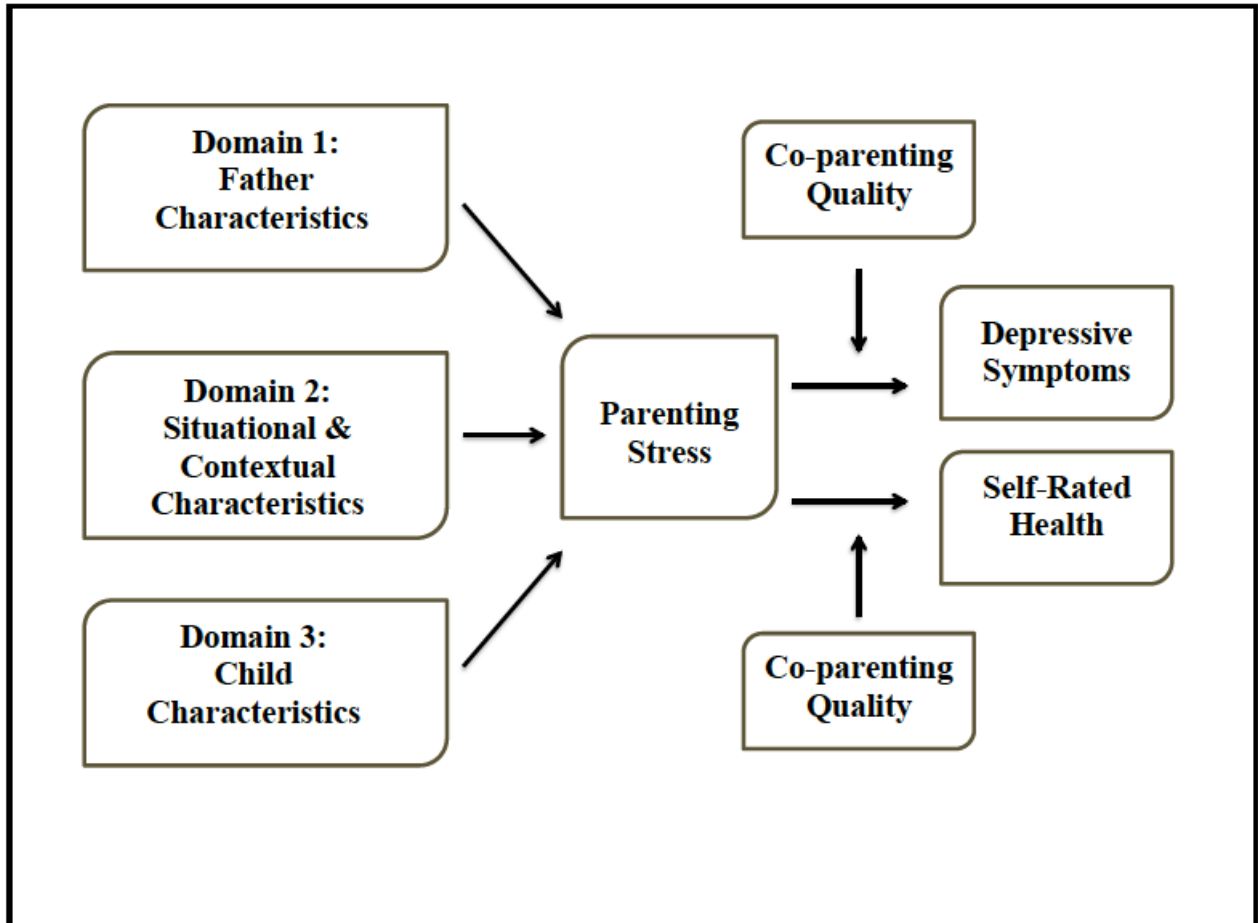


Figure 1.1. Conceptual model of the relationships between study variables

1.3 SPECIFIC AIMS

The purpose of the following study is to address some of the identified research gaps by using the Parenting Stress Model to examine how specific socio-demographic, interpersonal, and contextual predictors work to influence the relationship between parenting stress and two identified health outcomes for African American fathers. In addition, the current study will examine if one contextual factor, co-parenting quality, shapes those relationships. Therefore, the specific aims for the current study include:

Aim #1:

Examine the relationship between parenting stress and depressive symptoms among African American fathers.

Aim #2:

Examine the relationship between parenting stress and self-rated health among African American fathers.

Aim #3:

Examine if co-parenting quality moderates the relationship between parenting stress and depressive symptoms among African American fathers.

Aim #4:

Examine if co-parenting quality moderates the relationship between parenting stress and self-rated health among African American fathers.

The format of the overall study proceeds with six additional chapters. In chapter two, a literature review is presented to introduce the study's main concepts and the research that has been conducted to date. Chapter three entails the methods used for the study, inclusive of the data source, analytical sample, and the handling of missing data. Beginning with chapter four, each aim is addressed. In chapter four, the relationship between parenting stress and depressive symptoms among African American fathers is examined. Logistic regression analyses are performed to assess this relationship. Identifying and controlling for diverse contextual factors, such as relationship status, employment, and incarceration history, which could influence the relationship between parenting stress and depressive symptoms, would address a call for additional research on antecedents of stress for at-risk fathers (Bronte-Tinkew, 2010b). Chapter

four includes a presentation of the study findings along with a discussion of the implications of those findings.

In chapter five, the study addresses the second aim by examining the relationship between parenting stress and SRH among African American fathers. This second aim follows suit from the first aim and conducts logistic regression analyses to examine the relationship between parenting stress and SRH, using identified covariates. Chapter five also includes a presentation of the study findings along with a discussion of the implications of those findings.

Chapter six builds upon chapters four and five to address the study's third and fourth aims. The contextual variable of co-parenting quality is used to examine its moderating effect on the relationship between parenting stress and depressive symptoms and between parenting stress and SRH among African American fathers. Logistic regression analyses, which build upon the analyses performed in chapters four and five, are conducted and include variables equipped to highlight the role co-parenting quality plays in moderation. As well, chapter six includes a presentation of the study findings along with a discussion of the implications of those findings.

Chapter seven includes a summary of the findings found from each study aim and concludes with a discussion of the overall implications of this study. Lastly in chapter seven, research and practice recommendations and next steps are provided.

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CHAPTER 2: LITERATURE REVIEW

2.1 PARENTING STRESS

2.1.1 Definition and Etiology of Parenting Stress

Parenting Stress has been identified as a distinct type of stress related to being a parent and has been defined as the aversive psychological reaction to the demands of being a parent and experienced as negative feelings toward the self and towards the child (Creasey, 1996; Deater-Decker, 1998). Parenting stress occurs when the parent's perceptions of having access to available resources for meeting the demands of parenthood do not match the perceived demands of the parenting role (Deater-Decker, 1998). Parenting stress has been considered normal during the transition to parenthood (Eronen, 2007), ubiquitous in that all parents experience it to some degree (Deater-Decker, 1998), and has been found to affect both mothers and fathers (DeMaris, 2013; Fagan, 2014; Halpern-Meekin, 2016; Hildingsson, 2014a; Kim, 2015; Saisto, 2008; Bronte-Tinkew, 2010b).

2.1.2 Parenting Stress and Fathers

The increased interest in parenting stress among fathers has been suggested to stem from the growth in societal expectations that fathers assume more than the breadwinner role and undertake more child caretaking responsibilities (McBride, 1991; Harewood, 2016). In conjunction with the increased external demands and expectations, individual factors and characteristics can contribute to parenting stress in fathers. Personal attributes, such as age and education, in addition to psychological and emotional wellbeing, are considered factors that contribute to parental functioning and may affect parenting stress (Cardoso, 2010; Nam, 2015; DeMaris, 2013). Hildingsson (2014a) found that among married or cohabitating Swedish fathers, higher levels of education were related to greater parenting stress while Halpern-Meekin (2016) found father's employment to be negatively associated with parenting stress. Similarly, job loss

was also identified as a source of stress among a small sample of single custodial African American fathers (Coles, 2009). While unemployment has been associated with more parenting stress for fathers, mere employment does not remove the risk. Among a sample of low-income and working class fathers, those who reported greater workplace inflexibility reported more parenting stress than those employed fathers who did not face workplace inflexibility (Nomaguchi, 2016).

Regarding the contribution psychological well-being makes to parenting stress, depression has been the factor most explored, with anxiety also shown to be a predictor of parenting stress among fathers (Skreden, 2012; Vismara, 2016). Despite showing neither a correlation nor an association between parenting stress and depression among a small group of married fathers in Italy at one month postpartum (Epifanio, 2015) or among mostly married expectant fathers in Australia (Wee, 2015), several other studies have found a positive relationship between depressive symptomatology and parenting stress among fathers (DeMaris, 2013; Halpern-Meekin, 2016; Kim, 2015; Saisto, 2008; Kerstis, 2016).

Relationship characteristics and relationship quality have also been predictive of parenting stress among fathers. In a study of Finnish parents, fathers who lived together (married or co-habiting) with their child's mother during the pregnancy reported less parenting stress 2 –3 years after the child was born than fathers who lived elsewhere (Saisto, 2008). While most studies have shown that relationship conflict can contribute to parenting stress, findings have been inconsistent. Kim (2015) found that father's report of marital conflict was positively associated with parenting stress while report of marital satisfaction was negatively associated with parenting stress. In a large study of residential fathers, direct relationships were found between both father's perceptions of the co-parenting relationship and father's paternal stress as well as between partner relationship quality and paternal stress (Fagan, 2014). In contrast, DeMaris

(2013) did not find an association between marital conflict and parental aggravation in their sample of married couples during the first year of parenting. In a study of married or cohabiting, employed couples, expectant fathers with greater attachment anxiety, a measure of relationship closeness, were found to have greater parenting stress at 9 months postpartum, with the relationship partially mediated by the father's perception of supportive co-parenting (Schoppe-Sullivan, 2016). Finally, Halpern-Meekin (2016) found that fathers who experience on-again/off-again relationships, experience more parenting stress than fathers in stably together, stably broken-up, or re-partnered relationships.

Legal problems, as related to personal or child custody issues, housing transitions, and discrimination incidents have also been reported as sources of stress among African American fathers (Coles, 2009). In sum, the association various individual, interpersonal, and societal factors may have with parenting stress among fathers has been examined. While mixed results have been reported for certain characteristics, multiple studies have found that characteristics at all levels contribute to the parenting stress experience for fathers.

In addition to individual characteristics, partner and relationship characteristics, and social expectations and experiences, child characteristics have also been shown to contribute to parenting stress for fathers. Married or cohabiting first time fathers have been reported to have higher parenting stress than fathers with previous children (Hildingsson, 2014b). Although child behavior problems have been predictive of parenting stress (Creasey, 1996; Coles, 2009), child temperament and child health status have been the factors most studied. Pre-school children perceived as less emotionally intense and more sociable, were found to be less stressful for white, residential, employed fathers (McBride, 2002) with child temperament shown to be a strong predictor of parenting stress among a predominant group of married fathers of 2-3 year olds (Saisto, 2008). These findings are in line with DeMaris (2013) who found that child fussiness and

unpredictability was associated with higher parental aggravation among white, married fathers during the child's first year.

2.1.3 Outcomes of Parenting Stress

Parenting stress has implications for the family structure and has been found to have repercussions on child development (Karam, 2016; Harewood, 2017). Perceived parental stress can enfeeble the sense of a father's parental competence (McBride, 1989), open father-child communication (Ponnet, 2013), father-child engagement (Bronte-Tinkew, 2010; Mitchell, 2009), and involvement in father-child play activities (Baker, 2014). In addition, stress, as it relates to the concerns and issues that can influence African American father's involvement with their children, have been found to affect fathers' attitudes towards parenting and their satisfaction with parenting activities (Miller, 1994).

On top of affecting the parent-child dyad and child outcomes, parenting stress has potential adverse outcomes on the fathers' physical and mental health. In a rural sample of married couples, parenting stress was found to be positively associated with early onset hypertension (Wickrama, 2001). Large longitudinal studies have also found higher ratings of parenting stress to be associated with lower measures of self-rated health (Lantz 2005; Schytt, 2011). Although not conducted with fathers, a study with low-income urban mothers found that the presence of parenting stress increased the likelihood of reporting depressive symptoms (Manuel, 2012). Finally, in studies of predominately married, older, white fathers, parenting stress was associated with depression during the antenatal period (Wee, 2015) and had an indirect affect on depression at six months postpartum (Vismara, 2016).

2.1.4 Summary of Parenting Stress in Fathers

The presence of parenting stress has implications not only for the parent-child dyad and the child, but also for the physical and mental health of fathers. While those findings have been

identified in married, older, and maternal populations, research is deficit in explicitly looking at how parenting stress affects the health outcomes of African American fathers. In addition, multiple socio-demographic and relationship characteristics, as predictors of parenting stress, have been identified in primarily married or co-habiting populations however, however only minimal number of studies (Coles, 2009; Mitchell, 2009; Miller, 1994) have been identified that have looked at those contributors or non- health related outcomes in African American fathers specifically.

2.2 PATERNAL DEPRESSION

Paternal depression can adversely affect relationship harmony (Ramchandani, 2011), father-child attachment and engagement (Buist, 2003; Bronte-Tinkew, 2007; Hernandez, 2012; Baker, 2014), and child psychopathology (Kane, 2004; Sweeney, 2016), and can increase the risk for child neglect (Lee, S., 2012). The cost of depression among fathers can extend beyond its effects on relationships and child outcomes with the WHO recognizing depression as the leading cause of disability worldwide (WHO, 2017) and a contributor to the United State's economic and health burden (Greenberg, 2015; Murray, 2013). Depression has been noted to affect educational attainment, marriage timing and stability, work performance, work absenteeism, and future financial success (Kessler, 2012). In addition to the costs of depression to others and society, depression can take a toll on the individual health of men and fathers. The presence of depression has been associated with higher incidence of comorbid substance use disorder (Davis, 2008), diabetes (Carnethon, 2003), and cancer (Gross, 2010), predictive of hypertension (Davidson, 2000) and stroke (Ohira, 2001), and a risk factor for cardiovascular disease (Van der Kooy, 2007). In sum, the costs of paternal depression can be extensive. The potential impacts could range from adversely distressing the health and life potential of individual fathers to adversely affecting their interpersonal relationships and the society at large.

2.2.1 Prevalence and Predictors of Paternal Depression

Meta-analyses of paternal depression prevalence have reported rates ranging from 8.4% to 10.4% (Paulson, 2010; Cameron, 2016), which are higher than the 6.6-6.7% 12-month prevalence rate of depressive disorders found in the general adult population (Kessler, 2003; Kessler, 2005). Despite inclusion of a large number of studies, the noted meta-analyses exclude groups of fathers who may be at higher risk for depression such as fathers whose lives are exposed to multiple life stressors (Hoard, 2004), fathers with depressed partners (Ngai, 2015; Wee, 2011), or fathers who encompass socio-demographic factors as acknowledged, but not included, in a review of paternal depression comprised of predominantly white, married samples (Bradley, 2011). For instance, Bronte-Tinkew (2007) found higher rates of depression among fathers who were unemployed or had a criminal history, 14.3% and 17.1% respectively. In addition to unemployment and criminal history, Lee, Y. (2012) found previous history of depression, younger age, and low social support to be associated with depressive symptoms among a racially diverse sample of urban fathers. An even higher rate of depressive symptoms, 56%, was found among a group of low-income, non-residential, predominately African American fathers who faced resource challenges, such as unemployment, inability to pay child support, housing, and criminal history, or had personal challenges with social support (Anderson, 2005). While a systematic review found low social support to be a correlate of depression in men during both their partners' pregnancy and in the postpartum period (Wee, 2011), Ngai (2015) did not find social support to be associated with depression among a group of married, highly educated fathers. Lastly, results obtained from a large sample of fathers participating in the Medical Expenditure Panel Survey who had children aged 5-17, showed that poor health, unemployment, poverty, and maternal depressive symptoms were all associated with higher rates of depressive symptoms among the fathers (Rosenthal, 2013). In sum, the prevalence of paternal depression has been reported to be higher than the

prevalence of depressive disorders found in the general population. Furthermore, identification and inclusion of diverse socio-demographic risk factors have been found to inflate the prevalence even higher.

2.2.2 Depression in African American Fathers

In a study with African American fathers, Bamishigbin (2017) found an 11% prevalence rate for depressive symptoms at one-year post birth with fathers' coping styles and experiences of racism predictive of depressive symptoms. While similar prevalence rates of depression were found in a sample of African American fathers at 3 and 5 years post birth, 12% and 9% respectively, with significant correlations seen between educational attainment and major depressive episodes, when relationship status was considered, almost 30% of fathers who were friends or less than friends with the mother of the child reported depression as compared to 5% of married fathers (Sinkewicz, 2011). In a sample of expectant African American adolescent fathers, low family economic stress and highly conflicted relationships with their fathers, were two factors associated with depressive symptoms (Hunt, 2015). Similarly, while interpersonal stress was found to be associated with depressive symptoms among a group of adult African American fathers, social support buffered that relationship (Tsuchiya, 2018). Lastly, a 36% prevalence rate for depressive symptoms has also been reported for African American fathers with preteen children/sons, with symptoms associated with less father involvement in the areas of accessibility and engagement (Davis, 2009). In sum, prevalence rates of depressive symptoms for African American fathers have been found to range widely. Diverse individual, interpersonal, and societal factors, not highlighted in large meta-analyses (Bradley, 2011; Hoard, 2004), have all been found to be associated with reports of symptoms.

2.2.3 Depression and Parenting Stress

Notwithstanding the public health significance the prevalence paternal depression has in its own right, its association with and influence on other areas that affect father's health has the potential to compound each area's individual effects. Research is emerging in the exploration of the relationship between depression and parenting stress with positive associations found between depression and parenting stress among married or cohabitating fathers (Johansson, 2017; deMontigny, 2013; Bronte-Tinkew, 2007) and in a sample of racially diverse urban fathers (Lee, Y. 2012). The relationship between parenting stress and depression has been noted to be bidirectional with an increase in parenting stress increasing the likelihood of experiencing depression and that the presence of depression is related to experiencing increases in parenting stress (Hernandez, 2012). While Bamishigbin (2017) found a significant correlation between perceived stress and depressive symptoms in a sample of African American fathers, measured stress was not specifically related to parenting stress. As well, in a sample of primarily married Australian couples (Wee, 2015), while paternal depressive symptoms did not predict stress during pregnancy, higher levels of paternal stress during early pregnancy predicted paternal depression during late pregnancy. As with the study by Bamishigbin (2017), stress was not specific to parenting stress.

2.2.4 Summary of Depression in Fathers

A substantial amount of research has been conducted examining the effects of paternal depression, in particular, on interpersonal relationships and child outcomes and the effects of depression, in general, on society and individual health outcomes. While interest and research is growing in exploring depression in fathers, including contributors and associations such as parenting stress and co-parenting quality, focus has primarily been on married or co-habiting couples or among majority groups. While higher rates of depression have been noted when

multiple and various socio-demographic, socio-economic, and relationship factors are considered, African American fathers, as a group, have been shown to burden a greater number and combination of those influencing factors. Although studies have looked at both the relationship between depression and parenting stress among racially diverse samples and the relationship between depression and stress among African American fathers, exploration is lacking in looking at depression and parenting stress specifically among African American fathers.

2.3 SELF-RATED HEALTH

Self-Rated Health (SRH) has been a frequently used measure of general health in both clinical assessments and health research with significance behind this measure resting in its ability to predict health prognosis (Engstrom, 1999), respiratory exacerbations and hospitalizations (Farkas, 2010), use of health services (Jylha, 2009), cancer screening (Mitchell, 2013), and more commonly mortality (Tamayo-Fonseca, 2013; Razzaque, 2014). Longitudinal studies have shown that lower ratings of SRH serve as a strong predictor of future mortality even when controlling for objective measures of health (Nery Guimaraes, 2012) or socio-demographic factors (Razzaque, 2014). In a review of 27 community studies, of varying follow-up periods (Idler, 1997), and in a 30-year longitudinal study (Bopp, 2012), SRH was found to have an independent effect on mortality with the results showing a dose-response pattern- the dose the level of SRH and the response, the probability of mortality.

While SRH ratings have been shown to be consistent with objective or clinical measures (Wu, 2013), SRH is suggested to be more powerful to assess multiple dimensions of well-being (Goldman, 2004) and has been touted as being multidimensional and a holistic measure of both physical and mental health (Singh-Manoux, 2006). Jylha (2009) remarks that SRH assessments are the outputs of cognitive processes that consider both an individual's context and culture

alongside their biological and physiological state. In sum, SRH is a recognized and accepted multi-dimensional measure of subjective health status, health prognosis, and health behavior.

2.3.1 SRH and Men

Several individual demographic and modifiable and non-modifiable biomedical and behavioral health risk characteristics have been found to be predictive of measures of SRH. Age, marital status, smoking status, educational status, use of chronic medications, diagnosis of chronic disease, physical activity level, frequency of fast food intake, and BMI have been shown to be associated with or predictive of future SRH reports (Lindstrom, 2009; Froom, 2004; Hammig, 2014; Satia, 2004). In addition, racial differences have been noted in SRH reports. In studies of primarily mid-older aged adults, more African American men reported their health as fair as compared to White men (Weinrich, 2001; Beck, 2014).

Beyond individual characteristics, prospective studies that have looked at the influence of the environment on SRH have found that living in neighborhoods with greater deprivation was either associated with (Poortinga, 2007) or predictive of developing (Xiao, 2017) poorer SRH. In both men and women, perceived discrimination (Cuevas, 2013; DuMont, 2016; Earnshaw, 2016) and subjective social status (Thompson, 2014) has been shown to be associated with ratings of SRH. Among men, a large cross-sectional study in Sweden found that low social capital and low economic capital was independently associated with poor SRH (Ahnquist, 2012). Employment status has also been shown to be associated with SRH in men. In both cross-sectional and longitudinal European studies, men who experienced work place stress, were unemployed, or who experienced job loss had increased risks of poor SRH (Hakansson, 2010; Kaleta, 2008; Poortinga, 2007) and those ratings persisted even after reemployment (Huijts, 2015). In contrast, Savoy (2014) found that among a large sample of African American adults, financial strain, more than employment status, was associated with lower ratings of SRH. Higher financial stress scores

were also predictive of poorer SRH in a large, racially and age diverse, socioeconomically disadvantaged group of men and women (Lantz, 2005). Other factors that have been identified as associates of lower SRH reports among African American men include obesity and having multiple health conditions (Taylor, 2017). In sum, individual demographic and behavioral habits along with societal characteristics have been found to influence subjective measures of health.

2.3.2 SRH and Fathers

Although extensive research has been conducted on SRH in men, less work has been conducted looking specifically at SRH among fathers. While the biological and physiological components of the SRH measure may not vary between men who are fathers and those who are not, the contextual and cultural contributions may. Among studies with expectant and new fathers, Hildingsson (2014b) found that fathers who experienced childbirth related fear reported poorer health at 1 year postpartum. Another European study, a literature review, reported better physical and psychological health among expectant fathers who were recognized in their new position of having become a father (Plaintin, 2011).

Relationship status can affect fathers' appraisals of SRH. Canadian cross-sectional studies of lone and partnered fathers found that lone fathers have higher odds of poor/fair SRH, mostly explained by lower income and higher rates of unemployment by lone fathers (Janzen, 2006; Chiu, 2016). Westin (2006) found similar results in a large cross-sectional study with Swedish fathers, finding that single fathers reported worse SRH than coupled partners, with differences largely explained by financial stress and origin of birth. In a longitudinal study looking at paternal relationship status and SRH in the US, Meadows (2009) found that stably married and stably co-habiting fathers reported higher SRH than stably single fathers, whereas Hernandez (2012) did not find that relationship status had an influence on SRH. In sum, factors that are

initiated or are subject to become pronounced by the status of fatherhood have also been found to contribute to subjective measures of health for men.

2.3.3 SRH and African American Fathers

Likened to the limited amount of research done surrounding SRH and fathers as compared to men in general, even fewer studies have been identified that have looked at SRH among African American fathers. In a small study that examined the potential of African American fathers of toddlers as recipients of oral health promotion interventions, almost a quarter of fathers reported their general health as fair or poor (Broder, 2006).

2.3.4 SRH and Parenting Stress

The relationship between parenting stress and SRH has yielded mixed results. In exploring predictors of poorer SRH among new fathers, Schytt (2011) found an association with wrong timing of pregnancy, parental stress, and dissatisfaction with partner support. Similar findings were found in a sample of fathers with infants, in which better reports of SRH were predictive of lower parenting stress (Matvienko, 2018). Also, in a racially and age diverse longitudinal study involving both men and women, Lantz (2005) found that parental stress was related to poor or fair health. In contrast, Hernandez (2012) did not find a significant relationship between parenting stress and SRH among a racially diverse group of urban fathers. In sum, while mixed results have been found among the limited number of prior studies on SRH and parenting stress, associations have been reported.

2.3.5 Summary of SRH in Fathers

SRH, as a measure of an individual's overall well-being, has been used and studied extensively in national and international populations to predict health behaviors and outcomes and more generally, mortality. As it has been recognized that SRH is a mixed measure of an individual's biological and contextual assessments, the above review presents findings

highlighting both elements. Examination of the contextual influences on fathers' reports of SRH has primarily fallen under the category of employment and relationships, with the limited number of latter studies providing mixed results on the effect relationship status has on SRH. In addition, the studies that have looked at fathers' assessment of parental stress and SRH have also yielded mixed results. While SRH has been explored and reported on in African American men, the literature is lacking foundationally in examining SRH in African American fathers and even further in how their experience with parenting stress, employment, higher rates of relationship dissolution, and other contextual factors can affect their reports of SRH.

2.4 CO-PARENTING

Co-parenting refers to the supportive alliance between adults raising children and the ways parents work together in their roles as parents (McHale, 1997; Feinberg, 2002). According to Feinberg (2002), there are four components of a co-parenting model which include support versus undermining in the parental role, differences on childrearing values and issues, division of parental labor, which includes duties, tasks, and responsibilities, and management of family interactions. Co-parenting involves both overt actions, which are performed openly in the presence of other family members, and covert actions, which occur behind the scenes and are representative of feelings, actions, and cognitions that can support or undermine the co-parent's effectiveness in their role (McHale, 1997; Lamela, 2010). Wider views of co-parenting encompass multiple representations of the co-parent dyad in addition to married or divorced couples and include never married couples or any two people caring for a child (Van Egeren, 2004b; Lamela, 2010).

While the roots of co-parenting research has stemmed from divorced and married parents (VanEgeren, 2004b; Tissot, 2017; Price-Robertson, 2015; Durtschi, 2017; Fagan, 2014; Schoppe-Sullivan, 2016; Bonach, 2005; Feinberg, 2008; Konold, 2001; McHale, 1997; Van Egeren,

2004a), more recent research has expanded to look at co-parenting in adolescents (Varga, 2017), unmarried couples (Jamison, 2017), single African American mothers (Jones, 2007), and married and unmarried urban fathers (Isacco, 2010). The need to examine co-parenting within different contexts, that include diverse family structures, is essential to address the point that unmarried parents are likely to experience co-parenting differently (Jamison, 2017). For example, results from a study by Waller (2012) suggested that cooperative co-parenting might be more challenging for unmarried parents who separated after the birth or had never established couple status. According to McLanahan (2010), over 60% of non-marital relationships in fragile family populations dissolve within the first five years after a child's birth, with African American couples more likely than White couples to undergo this transition. In addition, this rate increased to 73% if the African American couple was not living together at the time of the child's birth. In sum, while the concept of co-parenting is universal, in that it encompasses the alliance between any two adults raising children, the context in which co-parenting occurs, specifically among African American fathers in fragile families, supports examination of how particular contexts contribute to a universal concept.

2.4.1 Predictors of Co-parenting

According to Feinberg (2003), the co-parenting model follows an ecological framework with co-parenting influenced by individual, familiar, and extra-familial/contextual characteristics and is further shaped by the larger social and cultural context. Individual characteristics, such as parental beliefs, personality adjustment, depression, education, and value systems (Feinberg, 2002; Stright, 2003; Lamela, 2010), along with extra-familial/contextual characteristics, such as social support, environmental and economic stress, marriage quality prior to birth, father-child engagement, and satisfaction with financial child support arrangements (Feinberg, 2003; VanEgeren, 2004a; Fagan, 2012a; Feinberg, 2002; Bonach, 2005), have been identified as

contributors to the co-parenting experience. In addition, child characteristics, such as child temperament (VanEgeren, 2004a; Feinberg, 2003), have also been identified as contributors.

Bronte-Tinkew (2010a) found that among never-married, nonresident fathers, education, income, incarceration, relationship status, number of children, and visitation frequency had influences on co-parenting supportiveness. For resident fathers, income, child temperament, partner parenting stress, relationship quality, and depression have been identified as associates with co-parenting support (Bronte-Tinkew; 2010b). Along with employment and housing (Jamison, 2017), relationship context, including the introduction of new partners, changes in family structure (Dush, 2011; McGene, 2012), and satisfaction with financial support (Bonach, 2005) have been found to influence the quality of co-parenting. In another study that looked at co-parenting in non-resident fathers, Fagan (2016) found that fathers both identified relatives and other adults, in addition to the focal child's mother, in their co-parenting network as well as reported higher parenting efficacy when more cooperative co-parenting relatives were reported. In sum, the concept of co-parenting is thought to follow an ecological framework. The diverse factors at each level have the potential to work together in unique combinations to influence fathers' co-parenting experiences.

2.4.2 Significance of Co-parenting

The study of co-parenting is significant in that the co-parenting relationship has been linked to child outcomes (Feinberg, 2002; Feinberg, 2007; Umemura, 2015; Cabrera, 2012), including child inhibition (Belsky, 1996) and child psychological adjustment (Teubert, 2010). In addition, positive co-parenting has been linked to parenting outcomes such as parental competence (Floyd, 1991), father involvement (Carslon, 2008; McLanahan, 2010; Waller, 2012), and future relationship quality (Durtschi, 2017). Moreover, co-parenting has been noted to be a central feature in the development of most adults (Vanegeren, 2004) and can affect parents,

including fathers, subjective well-being (Hoard, 2004). In sum, co-parenting can affect the present state and the future development and interactions of both children and parents.

2.4.3 Co-parenting and Fathers

By reason of co-parenting being a concept that involves two adults, much of prior research has centered on the experience of a dyad or has come from the maternal perspective (Gonzalez, 2014; Riina, 2012; Stright, 2003; Frank, 1991; Umemra, 2015; Varga, 2017; Hohmann-Marriott, 2011; Favez, 2016) with fewer studies focusing solely on fathers (Ellerbe, 2018; Fagan, 2016; Martin, 2017; Bronte-Tinkew, 2010a; Pinto, 2016; Baptista, 2018). As co-parenting is shaped by individual beliefs and perceptions and influences individual adult development, a focused look at fathers enables a more in-depth look at and understanding of one part of a bigger network. For instance, multiple studies have found that supportive co-parenting aided in developing fathers' parenting self-efficacy (Pinto, 2016; Fagan, 2016).

2.4.4 Co-parenting and African American Fathers

When looking specifically at co-parenting among African American fathers, previous research has largely examined fathers as part of a network (Coates, 2018; Mchale, 2014; Nelson, 2015; Parent, 2013; Riina, 2012). When co-parenting has been examined among African American fathers solely, the focus has primarily concerned co-parenting's relationship with the child, such as father involvement, and included a small number of fathers (Coates, 2014; Downer, 2005). In another study of co-parenting solely among African American fathers, Doyle (2014) found that discipline and communication were key co-parenting domains, factors not highlighted in conventional representations of the co-parenting frameworks. In sum, while co-parenting is a concept that involves at least a dyad, the African American fathers' co-parenting experience may be subject to influence by attributes more salient among fathers.

2.4.5 Co-parenting and Psychological Well-Being

The influence of co-parenting on a father's psychological well-being has been demonstrated concerning depression and anxiety with co-parenting conflict identified as a life stressor that contributes to paternal depressive symptoms (Hoard, 2004). This association is similar to those found in both a racially and relationship diverse sample of urban fathers, which found that co-parenting support decreased a father's probability of experiencing major depression (Hernandez, 2012), and a sample of coupled parents, which found that fathers' depression was associated with lower perceptions of cooperative co-parenting (Williams, 2018). In contrast, when examining nonresident African American fathers specifically, Caldwell (2013) found that better co-parenting was not associated with less paternal depressive symptoms. In another study that looked at the relationship between co-parenting and depressive symptoms, Tissot (2017) found that lower co-parenting conflict was associated with higher depressive symptoms among fathers in a small sample of cohabitating and/or married couples.

Bi-directionality has been demonstrated in the relationship between depression and co-parenting. Bronte-Tinkew (2007) found depressive symptoms to be negatively associated with co-parenting supportiveness in a study of resident fathers. Similar results were found in another group of cohabitating couples, in which fathers who reported mild or serious psychological distress were more likely to report lower quality co-parenting relationships (Price-Robertson, 2015). Finally, Isacco (2010) found that among both married and unmarried fathers, those who had increased depressive and anxiety symptoms perceived less co-parenting support. In sum, varying aspects of co-parenting have been examined, including support, conflict, and quality, as it relates to depressive symptoms. Along with the different aspects examined, mixed results have been found between co-parenting and depressive symptoms with a bi-directional relationship observed.

2.4.6 Co-parenting and Self-Rated Health

In contrast to the amount of prior work that has looked at the relationship between co-parenting and psychological health, minimal research has been conducted in looking at the relationship between co-parenting and physical health. While previous studies have looked at the association between co-parenting and quality of life (Cohen, 2014) and the association between relationship quality and physical health (McShall, 2015), no studies have been identified that have looked specifically at the relationship between co-parenting and physical or subjective health. In sum, while previous research has identified that co-parenting can have influences beyond those on psychological health, studies are lacking in looking at co-parenting's influence on subjective health, particularly for African American fathers.

2.4.7 Co-parenting and Parenting Stress

Although it has been recognized that stressors in an individual's environment can influence the co-parenting experience (Feinberg, 2002), less attention has been given to specifically examine the relationship between co-parenting and parental stress. In a large longitudinal study of co-residential, primarily married couples, fathers' perceptions of co-parenting were associated with parenting stress measures (Fagan, 2014). In a smaller sample of dual-earner couples, fathers who perceived greater supportive co-parenting reported less parenting stress during their first year postpartum (Schoppe-Sullivan, 2016). A similar association during the first year postpartum was also found among a larger sample of resident fathers (Bronte-Tinkew, 2010b). This association was also found among a group of parents of older preschoolers in which co-parenting cooperation was associated with lower levels of parenting stress, if the parents endorsed a liberal attitude toward parental roles that value paternal involvement in child-rearing (Pinquart, 2015). In sum, research has identified a direct relationship between parenting stress and co-parenting during early parenthood.

2.4.8 Co-parenting as a Moderator

Feinberg (2003) identified co-parenting as a potential mediating factor to understand how parent characteristics work through a family system to affect child outcomes. Co-parenting has been viewed as a risk mechanism linking risk factors, which include individual, family, and extra-familial factors such as depression, relationship quality or stress, with child or parenting outcomes, which include child exhibiting behaviors or parenting behaviors. For instance, co-parenting has been explored as a potential mediator between relationship quality, the risk, and father involvement, the parenting outcome (Varga, 2017) and between psychological well-being, the risk, and father involvement, the parenting outcome (Coates, 2014). Likewise, Feinberg (2003) looked at co-parenting as a potentially moderating or buffering factor between individual, family, and extra-familial risk factors and overall family outcomes. In seminal work, Frank (1991) identified the quality of parenting alliance as a moderator between child illness, the risk, and parenting stress, the parenting outcome, among fathers of preschoolers. Although not examined with fathers, Chen (2018) found that co-parenting moderated the relationship between parenting stress, the risk, and maternal warmth, the parenting outcome. In sum, co-parenting has been theoretically identified and empirically examined as a moderating factor between risk factors and parent outcomes.

2.4.9 Summary of Co-parenting in Fathers

The study of co-parenting has expanded from divorced and married couples to the never-married and single parent. With the percent of non-marital births increasing and the high chance of relationship dissolution within the first five years after a child's birth (McLanahan, 2010), research surrounding the concept of co-parenting among uncoupled parents has been documented. While it has been recognized that unmarried couples who go through union dissolution experience co-parenting differently than married couples who undergo dissolution (Jamison, 2017), and

research has begun to look at co-parenting in other family forms (Varga, 2017; Jamison, 2017; Jones, 2007), minimal work (Caldwell, 2013) has been dedicated to examining how the experience of co-parenting affects the psychological well-being of African American fathers, who may have a higher chance of relationship dissolution and thus face a different co-parenting experience. In addition, while the literature is both lacking in exploring the contribution co-parenting quality makes to subjective health status among fathers, and only beginning to explore the contribution co-parenting quality make to parenting stress (Fagan, 2014; Schoppe-Sullivan, 2016), it has yet to tap either of these phenomena in African American fathers nor explore how co-parenting may serve as a potential moderator between the relationship between parenting stress, an individual risk factor, and African American fathers' psychological and subjective well-being, as outcomes.

2.5 SUMMARY-THE FOCUS ON AFRICAN AMERICAN FATHERS

The attention given to African American men is increasing as a response to disparities seen in multiple arenas of society and in morbidity and mortality rates. As well, increased focus is being devoted to the impact parenthood renders to the physical and psychological health outcomes of fathers, with acknowledgement of the various socio-demographic, socio-economic, and relationship factors that can shape those outcomes. However, research is rudimentary in examining those factors among African American fathers, specifically as it relates to parenting stress and those health outcomes. Consideration of these factors, which are often fashioned differently from those held by the majority and more commonly researched population groups, could reveal a different parenting stress and co-parenting quality experience as well as contribute greater understanding of the influences of parenting stress on the health outcomes of African American fathers.

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CHAPTER 3: METHODS

3.1 DATA SOURCE

The current study used data from the Fragile Families and Child Wellbeing Study (hereafter Fragile Families; Fragile Families, 2016). Fragile Families is a longitudinal study that has followed a cohort of mostly unwed new parents and their children identified as “fragile families” because of the multiple risk factors associated with non-marital childbearing, a higher risk of poverty, and the susceptibility for relationship instability and dissolution. The purpose of Fragile Families was to examine the conditions and capabilities of new unwed parents and the well being of their children. Data were collected on approximately 4700 births, 3600 non-marital and 1100 marital births, in 75 hospitals in 20 cities across the United States beginning in 1998 with the last collection completed in 2014, at the 15-year follow-up mark. Data collection used a 3-stage sampling design. First, a stratified random sample of all US cities with a population greater than 200,000 was conducted, followed by a sampling of hospitals within those selected cities, then lastly by a sampling of births within those hospitals. Seventy-seven US cities with populations of 200,000 or more were rated and grouped according to the areas of welfare generosity, the strength of the child support system, and the strength of the local labor market. Among the selected cities, hospitals were chosen from among those hospitals that had the highest percent of non-marital births. Within each hospital, random samples of both married and unmarried births were conducted until preset quotas were met with the married sample to serve as a control group. Replicate weights are used in place of stratum and primary sampling unit variables to estimate sample variance. Both city level and national level weights are available for use in analysis. Weighted, the data are representative of non-marital births in either each of the 20 cities or representative of non-marital births in US cities with populations over 200,000 (RWJ, 2014; McLanahan, 2003; Reichman, 2001; Bendheim-Thoman, 2008).

The following parents were excluded from the study: those who planned on placing their child for adoption, those for whom the father was deceased at the time of the birth, those who did not speak English or Spanish well enough to complete the interview, mothers who were too ill to complete the interview, those whose baby died before the interview, and at certain hospitals, those who were under age 18. Fathers were considered eligible if the mother of his baby had completed a baseline interview (Reichman, 2001; Bendheim-Thoman, 2008).

Eligible mothers were initially interviewed after their child's birth while the mother was still in the hospital. At baseline, fathers were interviewed in person when they visited the mother in the hospital or by telephone outside of the hospital. The mothers reported information on fathers who could not be contacted. Follow-up structured interviews were conducted separately with both parents in-person or by telephone when their children reached their first birthday and by telephone at the third, fifth, ninth and fifteenth birthdays (RWJ, 2014; Bendheim-Thoman, 2008).

3.1.1 Analytic Sample

Seventy-eight percent of all eligible fathers completed a baseline interview. Of the full sample, 2407 fathers were identified as African American at baseline. Completion rates for all fathers decreased to 70% at the 5-year follow-up with differences noted by marital status at birth, 89% to 78% for married and 75% to 67% for unmarried fathers (Bendheim-Thoman, 2008). Of the 2407 African American fathers, 75% completed the baseline interview and 66%, 67%, and 64% completed the 1, 3, and 5-year interviews, respectively. The current study uses data from the fathers' 5-year interview. Of the 1541 African American fathers who completed the 5-year interview, 965 participated in the national level survey and are included in the current study.

3.1.2 Missing Data and Statistical Package

There were few variables that contained no missing data. Of the variables that contained missing data, the percent ranged from less than 1% to 16% with one variable missing 29% of the data. Mean values were imputed for missing data (Allison, 2010) to preserve maximum sample size for analysis. All estimates and analyses used national weights to make the data representative of non-marital births in US cities with populations over 200,000 (Bendheim-Thoman, 2008). All analyses were conducted using STATA 14.0. The level of statistical significance was set at $p < 0.05$.

3.2 RESEARCH ETHICS

The current study utilized un-identifiable secondary data. Approval for the current study underwent review and was designated as Not Research/Not Human Subjects Research by Johns Hopkins School of Public Health IRB.

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CHAPTER 4: EXAMINING THE RELATIONSHIP BETWEEN PARENTING STRESS AND DEPRESSIVE SYMPTOMS AMONG AFRICAN AMERICAN FATHERS

4.1 ABSTRACT

Rates of depression among fathers have been found to be higher than rates of depression among the general population. The impact of paternal depression can affect fathers' health behaviors and health outcomes, their relationships, and the broader society. While some studies have found that parenting stress has been associated with depressive symptoms among fathers, research is lacking in looking at depressive symptoms and parenting stress specifically among African American fathers. Using the Parenting Stress Model and data from the Fragile Families and Child Wellbeing Study, the current study addresses this gap by examining the relationship between parenting stress and depressive symptoms among African American fathers. Using a sample of 965 African American fathers, logistic regression models were used to examine the odds of current depressive symptoms as a function of parenting stress and significant bivariate level covariates. Current depressive symptoms were measured using questions from the Composite International Diagnostic Interview-Short Form (CIDI-SF) and parenting stress was assessed using four aggravation in parenting questions.

Results indicated that under the guidance of the Parenting Stress model, parenting stress was not significantly associated with current depressive symptoms for African American fathers (OR: 1.14; CI: 0.80, 1.64). One implication of the study's finding supports the call for additional research to expand the assessment of parenting stress, particularly what factors contribute to it in African American fathers.

4.2 INTRODUCTION

Depression And Depressive Symptoms Among Fathers

Paternal depression can adversely affect relationship harmony (Ramchandani, 2011), father-child attachment and engagement (Buist, 2003; Bronte-Tinkew, 2007; Hernandez, 2012; Baker, 2014), child psychopathology (Kane, 2004; Sweeney, 2016), and increase the risk for child neglect (Lee, S., 2012). The cost of depression among fathers can extend beyond its effects on relationships and child outcomes with the World Health Organization (WHO) recognizing depression as the leading cause of disability worldwide (WHO, 2017) and a contributor to the United States' economic and health burden (Greenberg, 2015; Murray, 2013). Depression has been noted to affect educational attainment, marriage timing and stability, work performance, work absenteeism, and future financial success (Kessler, 2012). In addition to the costs of depression to others and society, depression can take a toll on the individual health of men and fathers. The presence of depression has been associated with a higher incidence of comorbid substance use disorder (Davis, 2008), diabetes (Carnethon, 2003), and cancer (Gross, 2010), predictive of hypertension (Davidson, 2000) and stroke (Ohira, 2001), and a risk factor for cardiovascular disease (Van der Kooy, 2007). In sum, the impact of depression in fathers has been shown to be far reaching, leaving impressions on individual health, relationships, and society.

4.2.1 Prevalence and Predictors of Paternal Depressive Symptoms

The reach of paternal depression is also seen in its pervasiveness among fathers. Meta-analyses of paternal depression prevalence, inclusive of major depression and depressive symptomatology, have reported rates ranging from 8.4% to 10.4% (Paulson, 2010; Cameron, 2016), which are higher than the 6.6-6.7% 12-month prevalence rate of depressive disorders found in the general adult population (Kessler, 2003; Kessler, 2005). Despite inclusion of a large

number of studies, the meta-analyses exclude groups of fathers who may be at higher risk for depression, such as fathers whose lives are exposed to multiple life stressors (Hoard, 2004), fathers with depressed partners (Ngai, 2015; Wee, 2011), or fathers who encompass various socio-demographic factors, as acknowledged, but not included, in a review, comprised of predominantly white, married samples, of paternal depressive symptoms (Bradley, 2011). For instance, Bronte-Tinkew (2007) found higher rates of depressive symptoms among fathers who were unemployed or had a criminal history, 14.3% and 17.1%, respectively. In addition to unemployment and criminal history, Lee, Y. (2012) found a previous history of depression, younger age, and low social support to be associated with depressive symptoms among a racially diverse sample of urban fathers. An even higher rate of depressive symptoms, 56%, was found among a group of low-income, non-residential, predominately African American fathers who faced resource challenges, such as unemployment, inability to pay child support, housing, and criminal history, or had personal challenges with social support (Anderson, 2005). While a systematic review found low social support to be a correlate of depressive symptoms in men during the postpartum period (Wee, 2011), Ngai (2015) did not find social support to be associated with depressive symptoms among a group of married, highly educated fathers.

Specifically looking at African American fathers, Bamishigbin (2017) found a depressive symptoms rate of 11% at one-year post birth, with fathers' coping styles and experiences of racism predictive of depressive symptoms. While similar rates of symptoms indicative of major depressive episodes were found in a sample of African American fathers at 3 and 5 years post birth, 12% and 9% respectively, with significant correlations observed between educational attainment and major depressive episodes, when relationship status was considered, almost 30% of fathers who were friends or less than friends with the mother of the child reported symptoms of major depressive episodes as compared to 5% of married fathers (Sinkewicz, 2011). In sum,

prevalence rates of depression and depressive symptoms have been shown to be both higher and more varied in fathers, and among African American fathers in particular, than in the general population, with variation influenced by diverse social correlates.

4.2.2 Depressive Symptoms and Parenting Stress

Notwithstanding the significance the prevalence paternal depression has in its own right, its association with and links to other aspects of fathers' health makes paternal depression an even more sizeable issue. Research is emerging in the exploration of the relationship between depressive symptoms and parenting stress with positive associations found among resident fathers (Bronte-Tinkew, 2007) and in a sample of racially diverse urban fathers (Lee, Y., 2012). The relationship between parenting stress and the likelihood of major depression has been noted to be bidirectional with an increase in parenting stress related to an increased probability of experiencing major depression and symptom scores suggestive of major depression related to an increased experience of parenting stress (Hernandez, 2012). While Bamishigbin (2017) found a significant correlation between perceived stress and depressive symptoms in a sample of African American fathers, measured stress was not specifically related to parenting stress. As well, in a sample of primarily married Australian couples (Wee, 2015), while paternal depressive symptoms did not predict stress during pregnancy, higher levels of paternal stress during early pregnancy predicted paternal depressive symptoms during late pregnancy. As with the study by Bamishigbin (2017), stress was not specific to parenting stress. In sum, associations between both general perceived stress and parenting stress and depressive symptoms have been found in various populations of fathers.

4.2.3 Summary of Depressive Symptoms in Fathers

A substantial amount of research has been conducted examining the effects of depression, in general, on society and individual health outcomes and paternal depression, in particular, on

interpersonal relationships and child outcomes (Greenberg, 2015; Murray, 2013; Carnethon, 2003; Gross, 2010; Davidson, 2000; Ohira, 2001; Ramchandani, 2011; Buist, 2003; Bronte-Tinkew, 2007; Hernandez, 2012; Baker, 2014; Kane, 2004; Sweeney, 2016). Even though interest is growing in exploring depressive symptoms in fathers, particularly its association with parenting stress, focus has primarily been on married or co-habiting couples or among majority or racially mixt groups (Bronte-Tinkew, 2007; Lee, Y., 2012; Wee, 2015). While higher rates of depressive symptoms have been noted when various socio-demographic, socio-economic, and relationship factors are considered, African American fathers have been shown to burden a greater number and combination of those influencing factors (Sellers, 2013; BJS, 2014; BLS, 2016; McLanahan, 2010). In addition, while previous research has looked at the relationship between depressive symptoms and parenting stress among racially diverse samples (Lee, Y., 2012) and the relationship between depressive symptoms and stress among African American fathers (Bamishigbin, 2017), research is lacking in looking at depressive symptoms and parenting stress specifically among African American fathers. The aim of the current study is to address this gap by examining the relationship between parenting stress and depressive symptoms among African American fathers.

4.3 METHODS

4.3.1 Theoretical Orientation

Abidin and Burke developed The Parenting Stress Model as a guide for the construction of a Parenting Stress Index (PSI), a tool designed to empirically evaluate the pathways suggested to contribute to dysfunctional parenting and child outcomes, with stress as the central construct (Abidin, 1990; Abidin, 1992).

The Parenting Stress Model suggests that parenting behavior is influenced by multiple sociological, environmental, behavioral, and developmental factors (Abidin, 1992). Parental

stress is denoted as function of three domains- parent characteristics, child characteristics, and demographic or situational characteristics, such as work, environment, marital relationship, daily hassles, and life events (Abidin, 1992).

The Parenting Stress Model is deemed suitable to address the study's focus on parenting stress in African American fathers as this framework has commonly been used to look at parenting stress in other populations (Golfenshtein, 2016; Ponnet, 2013; Kim, 2015; Oddi, 2013). In addition, while the Parenting Stress Model was created to demonstrate the suggested pathways that contribute to dysfunctional parenting and child outcomes, this study will adjust the model to demonstrate the suggested pathway that parenting stress is associated with depressive symptoms in African American fathers.

As indicated in the study's conceptual framework, the first domain contains individual father characteristics that have been suggested to contribute to parenting stress and have been found to be associated with depressive symptoms. These characteristics include age, education, substance use, impulsivity, and depressive symptom history. The second domain consists of contextual characteristics and includes employment, income, incarceration history, relationship status, relationship quality, number of children, multi-partner fertility, father involvement, co-parenting, and social support (Figure 4.1).

Finally in the conceptual framework, the third domain representing child characteristics is presented. With the child viewed as one of three elements that contribute to parenting stress, both child temperament and child gender are evaluated as covariates.

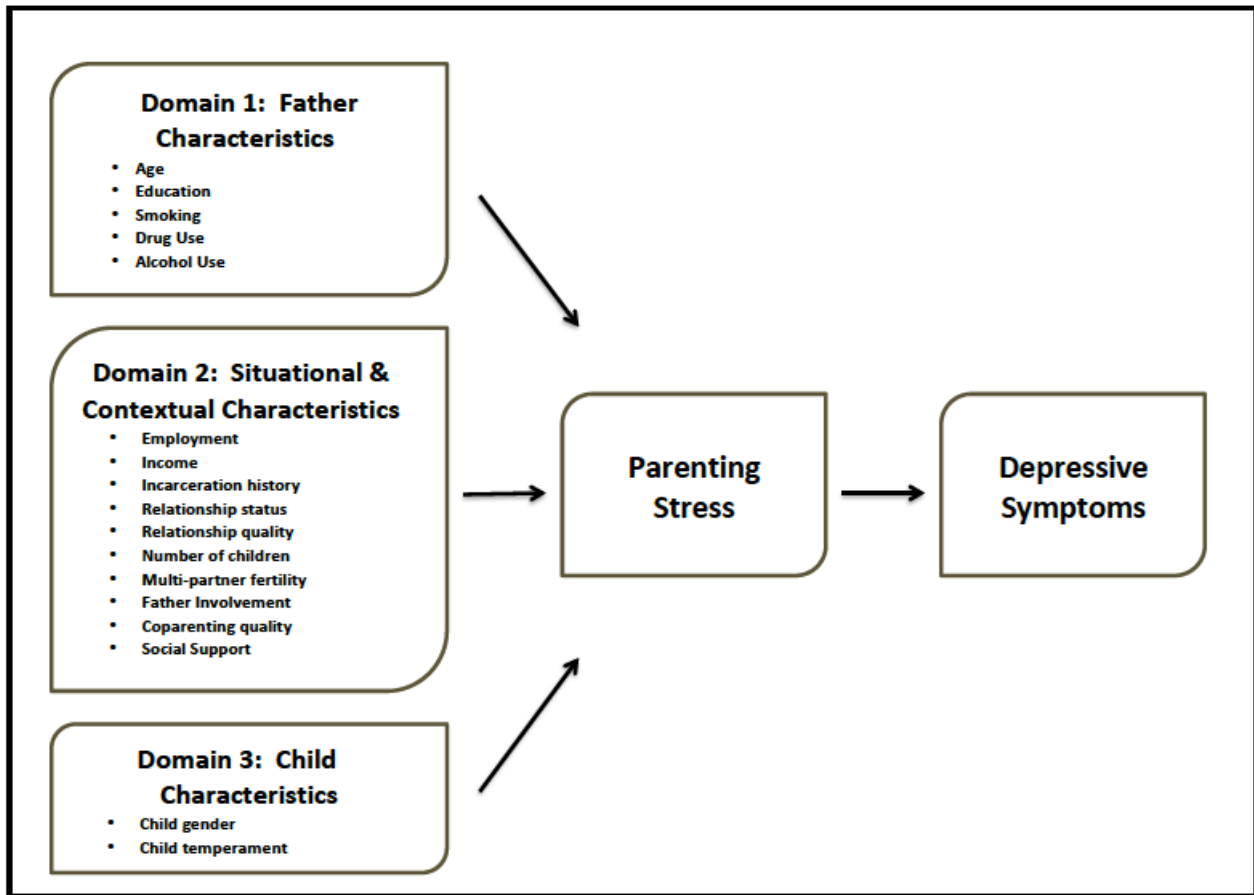


Figure 4.1 Relationship between Parenting Stress and Depressive Symptoms Among African American Fathers

4.3.2 Study Sample

Information from and about African American fathers was obtained using data from the Fragile Families and Child Wellbeing Study (hereafter Fragile Families; Fragile Families, 2016). Fragile Families is a longitudinal study that has followed a cohort of mostly unwed new parents and their children identified as “fragile families” because of the multiple risk factors associated with non-marital childbearing, a higher risk of poverty, and the susceptibility for relationship instability and dissolution. The purpose of Fragile Families was to examine the conditions and capabilities of new unwed parents and the well being of their children. Data were collected on approximately 4700 births, 3600 non-marital and 1100 marital births, in 75 hospitals in 20 cities across the United States beginning in 1998 with the last collection completed in 2014, at the 15-year follow-up mark. Data collection used a 3-stage sampling design. First, a stratified random sample of all US cities with a population greater than 200,000 was conducted, followed by a sampling of hospitals within those selected cities, then lastly by a sampling of births within those hospitals. Seventy-seven US cities with populations of 200,000 or more were rated and grouped according to the areas of welfare generosity, the strength of the child support system, and the strength of the local labor market. Among the selected cities, hospitals were chosen from among those hospitals that had the highest percent of non-marital births. Within each hospital, random samples of both married and unmarried births were conducted until preset quotas were met with the married sample to serve as a control group. Replicate weights are used in place of stratum and primary sampling unit variables to estimate sample variance. Both city level and national level weights are available for use in analysis. Weighted, the data are representative of non-marital births in either each of the 20 cities or

representative of non-marital births in US cities with populations over 200,000 (RWJ, 2014; McLanahan, 2003; Reichman, 2001; Bendheim-Thoman, 2008).

Fathers were considered eligible for the study if the mother of his baby had completed a baseline interview. Eligible mothers were initially interviewed after their child's birth while the mother was still in the hospital. At baseline, fathers were interviewed in person when they visited the mother in the hospital or by telephone outside of the hospital. The mothers reported information on fathers who could not be contacted. Follow-up structured interviews were conducted separately with both parents in-person or by telephone when their children reached their first birthday and by telephone at the third, fifth, ninth and fifteenth birthdays (Reichman, 2001; RWJ, 2014; Bendheim-Thoman, 2008).

Seventy-eight percent of all eligible fathers completed a baseline interview. Of the full sample, 2407 fathers were identified as African American at baseline. Of the 2407 African American fathers, 75% completed the baseline interview and 66%, 67%, and 64% completed the 1, 3, and 5-year interviews, respectively (Bendheim-Thoman, 2008). The current study uses data from the fathers' 5-year interview. Of the 1541 African American fathers who completed the 5-year interview, 965 participated in the national level survey and are included in the current study.

4.3.3 Measures

Dependent Variable

Depressive Symptoms

The dependent variable of interest for the current study is depressive symptoms. Depressive symptoms are measured using questions from the Composite International Diagnostic Interview-Short Form (CIDI-SF), a standardized instrument for the assessment of

mental disorders with questions consistent with the Diagnostic and Statistical Manual of Mental Disorders- Fourth Edition (Kessler et al., 1998; APA, 1994). Responses generated from the Short Form assess the probability that the fathers would be diagnosed with major depression if given the full CIDI assessment. Initially, fathers are asked the following stem questions: “During the past twelve months, has there ever been a time when you felt sad, blue, or depressed for two or more weeks in a row?” “During that time, did the feelings of being sad, blue, or depressed usually last...all day long, most of the day, about half of the day, or less than half the day” and “During those two weeks, did you feel this way...every day, almost every day, or less often?” If the father answered yes to those questions, he would be asked seven additional symptom questions. The sum of positive responses to each of the seven questions along with the original stem questions would yield a total score of 0-8. Fathers who score higher than three are considered to have greater than a 50% probability of being a case for major depression. The current study uses the dichotomous scoring method proposed by Fragile Families as one of the two alternatives to use with the CIDI-SF, to identify probably versus non-probable cases of major depression based on whether scores are greater than or less than three (Fragile Families, Scales Documentation, 2008).

Independent Variable

Parenting Stress

Parenting Stress is conceptualized through aggravation in parenting questions developed by Child Trends to measure the amount of parenting stress brought on by changes in employment, income, or other factors in the parent’s life (Fragile Families, Scales Documentation, 2008). The original 9-item scale contains items from Aibdin’s (1995) Parent Stress Inventory. Fragile Families utilizes a modified version of the full scale which consists of

the four following statements “Being a parent is harder than I thought it would be”, “I feel trapped by my responsibilities as a parent”, “I find that taking care of my child (ren) is much more work than pleasure”, and “I often feel tired, worn out, or exhausted from raising a family”. Each statement is rated using a 4-point Likert-scale ranging from “Strongly Agree” to “Strongly Disagree” with a final score noted as an average score of the four statements, ranging from 1-4 with higher scores representative of a greater level of parenting stress. Parenting stress is assessed as a continuous variable with possible scores ranging from 0-12. Previous studies using year 5 Fragile Families data have reported $\alpha = 0.58$ for fathers (Halpern-Meekin, 2016).

Covariates

The following covariates have been selected based on their associations with depressive symptoms in previous literature.

Age. Lee, Y. (2012) found that younger fathers had a higher risk for depressive symptoms than older fathers when their child was aged 3 although not at child age 5. In this study, paternal age is assessed as a categorical variable, grouping fathers as less than 26, 27-33, and older than 34 years of age. This age group is similar to that used by other Fragile Families researchers (Castillo, 2012).

Education. Level of education has been associated with the probability of depression (Lee, 2016). Education is assessed by the father’s report of highest education level at study baseline using an ordinal scale: Less than high school diploma, high school diploma or equivalent degree, some college or trade, and 4 year college degree or higher. In this study, fathers with a 4 year college degree or higher are combined with fathers with some college or trade to create a 3 categorical variable for education level, as less than 5% of the sample had a four-year college

degree or more. This grouping has also been used by other studies using Fragile Families data (Bronte-Tinkew, 2010; Carlson, 2008; Dush, 2011).

Employment. Employment status has been identified as a predictor of depressive symptoms (Anderson, 2005; Bronte-Tinkew, 2007). Employment status is assessed from the following questions: “Last week, did you do any regular work for pay” with “Yes” and “No” as response options.

Income. Depression symptoms have been found to be associated with income (Hong, 2011; Dismuke, 2010) with employment status and financial strain influencing that relationship (Zimmerman, 2005; Fukuda, 2012). Income is assessed with the following question: “In the past twelve months, what was the total income of your household from all sources before taxes and other deductions? Please include your own income and the income of everyone living with you.” Income is assessed as a continuous variable.

Smoking Status. The risk of depression has been found to be positively associated with smoking (Chen, 2017; Buzi, 2010; Lyons, 2008) and depression prevalence has been found to occur more often in smokers than non-smokers (Unsal, 2014). Smoking status is assessed with the following question: “In the past month, did you smoke cigarettes?” This variable is assessed as a binary variable whether fathers respond “Yes” or “No”.

Alcohol Use. Alcohol use has been recorded as a symptom associated with depression among men (Cavanagh, 2017; Brownhill, 2005). Coulson (2014) found that both non-use and three or more drinks a day was associated with a greater likelihood of depression. Alcohol use is assessed with the question “What is the largest number of drinks you had in any single day during the past twelve months” with possible responses of none, between one and three, four to ten, eleven to twenty, or more than twenty drinks. Fathers were considered alcohol users if they

consumed more than 4 drinks in a single day in the past 12 months (Fragile Families, Scales Documentation, 2008).

Drug Use. Drug misuse has been documented as a symptom associated with depression (Fingeret, 2005), specifically among men (Cavanagh, 2017; Brownhill, 2005). For drug use, fathers were asked to report on the use of drugs on their own (without a prescription, in larger amounts than prescribed, or for a longer period than prescribed) in the past twelve months. Fathers were considered drug users if they reported any drug use in the past 12 months (Fragile Families, Scales Documentation, 2008).

Impulsivity. Previous research has shown a relationship between poor impulse control and depression among men (Cavanagh, 2017; Winkler, 2005). Impulsivity level is measured using the two questions taken from Dickman's 1990 Impulsivity scale pertaining to dysfunctional impulsivity (Fragile Families, Scales Documentation, 2008), "I often get into trouble because I don't think before I act" and "I often say and do things without considering the consequences". Responses from a 4-point Likert scale are reverse coded and summed to form a continuous variable ranging from 0-6, with higher scores representing lower levels of self-control ($\alpha = .84$, Turney, 2012).

Incarceration history. Current and history of recent incarceration has been associated with a higher risk of depressive symptoms (Anderson, 2005; Bronte-Tinkew, 2007). A constructed dichotomous variable was created by Fragile Families based on both mothers' and fathers' reports to measure whether the father had ever been in jail with possible responses of not in jail/never in jail or in jail/ever in jail (Bendheim-Thoman, 2008).

Relationship quality. Relationship quality has been shown to be negatively associated with depression in fathers (Paulson, 2010) and found to serve as a mediator in the association

between relationship status and mental health (Leach, 2013). Relationship quality is assessed with the question “In general, would you say that your relationship with her (Mother) is excellent, very good, good, fair, or poor?” Responses were reverse coded to 1-5 so that higher scores represented higher quality relationships (Castillo, 2012).

Relationship status. Relationship status is assessed as a nominal variable with the following question: “What is your relationship with (Mother) now?” with the following response options “Married”, “Romantically involved”, “Separated”, “Divorced”, “Just friends”, and “Not in any kind of relationship”.

Social Support. Low social support has been reported to be associated with greater depressive symptoms (Lee, Y., 2012; Anderson, 2005; Wee, 2011). Perceived social support is measured with the following 4 items: “If you needed help during the next year, could you count on someone to loan you \$200?” “Is there someone you could count on to provide you with a place to live?” “Is there someone you could count on to help you with emergency child care?” “Is there someone you could count on to co-sign for a bank loan with you for \$1,000?” Response options are no (0) and yes (1). Values from the four items are summed to create a scale ranging from 0, indicating a low level of perceived social support, to 4, indicating a high level of perceived support. Fagan (2011) reported $\alpha = 0.77$ among a group of adolescent and adult fathers.

Father involvement. Previous research has shown that higher father involvement and contact was related to lower levels of depression (Bokker, 2006). The level of father involvement was assessed by asking fathers how many days in a week they 1) sung songs or nursery rhymes, 2) read stories, 3) told stories, 4) played inside with toys, 5) told child that he appreciated something they did, 5) played outside in the yard, park, or a playground, 6) took the child on an

outing, and 7) watched TV or a video together. Each response holds a value from 0, for none, to 7, for seven days a week, resulting in possible summative score ranging from 0 to 56 with higher scores indicative of more involvement (Waller, 2012). Total scores were transformed to create a score of 0-7 to provide an average number of days per week. Isacco (2010) reported $\alpha = 0.96$ for married fathers and $\alpha = 0.95$ for non-married fathers at year 1 and Fagan (2011) reported $\alpha = 0.91$ at year 3.

Multi-partner fertility. Multi-partner fertility is assessed from the following question: “Does father have any children by someone other than mother?” This covariate is assessed as a binary variable whether fathers respond “Yes” or “No”.

Number of children. The number of children the father has with his child’s mother is associated with stress and first-time fathers have been reported to have higher parenting stress than fathers with previous children (Hildingsson, 2014b). Number of children is assessed as a continuous variable.

Child temperament. Inconsistent findings have been reported on the influence child temperament has with paternal depression. While Hanington (2010) did not find any effects of child temperament on paternal depression, Nath (2016) found an association in that fathers with higher levels of depressive symptoms had children with more difficult temperaments as compared to fathers who reported lesser symptoms. Child temperament is assessed at child age one by asking fathers to rate on a 1-5 scale how alike (not at all to very much) the following three statements are to their child’s behavior: He/She often fusses and cries, He/She gets upset easily, and He/She reacts strongly when upset. Sum scores were recoded to reflect a range of 0-12 with higher scores representing a more difficult temperament ($\alpha = 0.61$, Cardoso, 2010).

Child gender. Previous studies have yielded mixed results on the association between child gender and parental depression. Researchers have found that mothers of male children reported more depressive symptoms (Lagerberg, 2012), had greater odds of postpartum depression (Da Silva Moraes, 2006), or found that child gender was protective against prenatal depression but not postpartum depression (Fiala, 2017). Cankorur (2017) however, did not find that gender preference was associated with either maternal antenatal or postpartum depression. Child gender is assessed as a nominal variable of male or female.

Co-parenting. The relationship between co-parenting and depression has been demonstrated to be multifaceted and bidirectional. While co-parenting quality has been found to be predictive of future well being in parents (Norlin, 2013), Bronte (2009) found that a higher level of depression was associated less supportive co-parenting and more co-parenting conflict among fathers. This was consistent with other studies that found that when fathers experienced more depressive symptoms, they either engaged in decreased co-parenting (Elliston, 2008) or perceived less co-parenting support (Isacco, 2010). Questions to assess co-parenting support were developed by the Fragile Families researchers (Isacco, 2010). Co-parenting is measured using 6 items to assess the father's perception of trust, respect, and support from and communication with the mother in raising their child. The following statements were rated as "Always True" "Sometimes True" "Rarely True" or "Never True": "When (Mother) is with (Child), she acts like the mother you want for your child", "You can trust (Mother) to take good care of (Child)", "She respects the schedules and rules you make for (Child)", "She supports you in the way you want to raise (Child)", "You and (Mother) talk about problems that come up with raising (Child)", and "You can count on (Mother) for help when you need someone to look after (Child) for a few hours". Dush (2011) reported an $\alpha = 0.77$ for fathers at year five when

the never true and rarely true replies were collapsed into the same group to create 3 response categories thus creating a continuous variable with scores ranging from 0-12.

Maternal depressive symptoms. Literature reviews by Goodman (2004) and Bradley (2011) found maternal depression to be a strong predictor of paternal depression during the postpartum period. Maternal depression is also assessed by asking fathers the question “Since (CHILD) was born, has there been a time when (MOTHER) felt sad, blue or depressed, or lost interest in most things that usually give her pleasure? This covariate is assessed as a binary variable whether fathers respond “Yes” or “No”.

4.3.4 Analysis

Descriptive analysis was performed on the independent and dependent variables and on the covariates. For the independent variable parenting stress and the covariates impulsivity, relationship quality, father involvement, social support, co-parenting quality, number of children, and child temperament, the mean and range of scores is reported. For the dependent dichotomous variable depressive symptoms along with the covariates smoking status, alcohol use, drug use, employment status, incarceration history, multi-partner fertility, and (male) child gender, the percent distribution of each variable is reported. The percent distribution for African American fathers falling into each category for the covariates of age, education, and relationship status, is described.

Next in the analysis, we examined unadjusted bivariate associations between current depressive symptoms and each covariate using either t-tests or chi-squared tests. In the last step of our analysis, we examined the relationship between parenting stress and depressive symptoms by regressing depressive symptoms on parenting stress and the predictors that were statistically significant at $p < 0.10$ with depressive symptoms at the bivariate level. Models

were created and examined in a progressive fashion, assessing model characteristics after predictors from domain 1, father characteristics, were included before proceeding to add predictors from domain 2, contextual characteristics. The resulting model characteristics were then assessed before adding predictors from domain 3, child characteristics. This method was done to examine for domain specific influences.

There were few variables that contained no missing data. Of the variables that contained missing data, the percent ranged from less than 1% to 16% with one variable missing 29% of the data. Mean values were imputed for missing data (Allison, 2010) to preserve maximum sample size for analysis. All estimates and analyses used national weights to make the data representative of non-marital births in US cities with populations over 200,000 (Bendheim-Thoman, 2008). All analyses were conducted using STATA 14.0. The level of statistical significance was set at $p < 0.05$.

4.4 RESULTS

4.4.1 Descriptive Statistics

Table 4.1 presents the weighted demographic characteristics of the sample. Fathers' age ranged from 20-53 and 17.8% of the fathers were below the age of 26 and 51.1% of the fathers were older than 34. For education, 48.7% of the sample had a high school diploma or equivalent and 27.6% had at least some college education. For substance use, 46.2% of fathers were current smokers, 20.2% were consumers of alcohol, and 12.5% participated in some form of drug use. The average impulsivity score was 1.6 on a scale of 0-6. Seventeen percent of the fathers reported depressive symptoms in either survey year 1 or year 3 and 9.7% reported depressive symptoms in survey year 5.

Thirty-six percent of the sample was married, 20.2% were in a romantic relationship, 28.4% were friends, and 9.9% had a no relationship status with the focal child's mother. The mean relationship quality rating was 3.6 indicating that on average, fathers reported that the quality of their relationship with the mother was good to very good. Seventy-five percent of the fathers were working at the time of the survey and 52% were currently or previously incarcerated.

Fathers had an average of 2.9 children and thirty-four percent of fathers had multi-partner fertility, or children by more than one partner. Fathers reported being involved with their child an average of 3.7 days per week and conveyed a level of co-parenting quality of 10.2 on a scale of 0-12. On average, fathers reported their level of perceived support at 3.2 out of possible score of 4. Male was the focal child's gender for 54.9% of the fathers and fathers reported a mean child temperament score of 6.4 on a scale of 0-12.

Forty percent of the fathers reported that the child's mother felt sad, blue or depressed, or lost interest in most things that usually gave her pleasure as some time since the birth of their child. Finally, the mean parenting stress score among fathers was 4.4 on a scale of 0-12.

4.4.2 Bivariate Association between Depressive Symptoms and Domain Characteristics

Individual Characteristics

Table 4.2 shows the unadjusted bivariate relationship between the presence of current depressive symptoms and the covariates. While there was no significant relationship between depressive symptoms and age ($p = 0.055$), the proportion of fathers with current depressive symptoms were similar in both the youngest age group and the oldest age group (37.8% and 35.6% respectively) as compared to fathers without depressive symptoms, where the proportion of fathers in the oldest age group was more than three times the proportion in the youngest age

group (52.7% vs. 15.7%). There was no significant relationship between depressive symptoms and education ($p = 0.345$) however, fathers with depressive symptoms had less education overall than fathers without symptoms. A higher percent of fathers with depressive symptoms had less than a high school education as compared to fathers without symptoms, 39.0% vs. 22.1%, and a lower percent of fathers with depressive symptoms had either a high school education or at least some college education, 40.6% vs. 49.6% and 20.4% vs. 28.4% respectively, as compared to fathers without symptoms.

No significant relationship was found between either smoking status and depressive symptoms or between alcohol use and depressive symptoms ($p = 0.139$ and $p = 0.628$ respectively) even though a higher percent of African American fathers who reported depressive symptoms, as compared to fathers who did not report depressive symptoms, reported smoking and use of alcohol, 63.5% vs. 44.4% and 24.4% vs. 19.7% respectively. In contrast, a statistically significant relationship was found between use of drugs and current depressive symptoms ($p < 0.000$), with 46.2% of fathers with current symptoms reporting drug use as compared to 8.9% of fathers without current symptoms.

There was also a statistically significant relationship between impulsivity level and depressive symptoms, with fathers who reported depressive symptoms having an average score of 2.2 as compared to 1.5 for fathers without symptoms ($p = 0.035$). A history of depressive symptoms was significantly associated with current depressive symptoms ($p = 0.011$). Over 40% of fathers with current depressive symptoms also reported previous symptoms in either survey year 1 or year 3 as compared to 14.7% of fathers without current depressive symptoms.

Contextual Characteristics

No significant relationship was found between depressive symptoms and relationship status ($p = 0.196$). A higher proportion of fathers with current depressive symptoms however were in either a romantic relationship or in a friend status relationship, 33.1% and 35.6% respectively, as compared to fathers without depressive symptoms, where a higher proportion of these fathers were married (38.8%). In contrast, a statistically significant relationship was found between relationship quality and fathers' report of depressive symptoms, with fathers with depressive symptoms reporting lower scores as compared to those without symptoms, 3.0 vs. 3.7 respectively ($p = 0.037$).

A significant association was also found between employment and depressive symptoms ($p = 0.012$). Among the fathers who reported current depressive symptoms, only 53.4% of them were employed as compared to 78.3% of fathers who did not report current symptoms. Current or previous incarceration did not show a significant relationship with depressive symptoms, with 75.9% of fathers who reported depressive symptoms having a connection with incarceration as compared to 49.8% of fathers who did not report symptoms ($p = 0.075$).

There were no significant relationships between depressive symptoms and either number of children or multi-partner fertility ($p = 0.302$ and $p = 0.305$, respectively). While fathers with depressive symptoms had a greater number of children, 3.4 vs. 2.8 as compared to fathers without symptoms, a smaller percentage had multi-partner fertility, 21.2% vs. 35.6%.

There were no significant relationships between depressive symptoms and either father involvement or co-parenting quality scores ($p = 0.235$ and $p = 0.107$ respectively) even though fathers with depressive symptoms reported lower father involvement and co-parenting quality scores as compared to fathers without current symptoms (3.3 vs. 3.7 and 9.4 vs. 10.3

respectively). Similarly, no significant relationship was found between depressive symptoms and perceived support, with similar scores reported for fathers with and without depressive symptoms, 3.0 vs. 3.2 ($p = 0.336$).

Child Characteristics

Child gender was significantly associated with depressive symptoms, with male children more common among fathers with depressive symptoms ($p = 0.004$). However, no significant relationship was found for reports of child temperament ($p = 0.295$), with fathers with depressive symptoms rating their child's temperament at 7.0 as compared to 6.3 for fathers without symptoms.

Maternal Characteristics

Maternal age was not associated with depressive symptoms. The mean maternal age for fathers with symptoms was at 23.7 vs. 25.5 for fathers without symptoms ($p = 0.439$). Although not statistically significant ($p = 0.238$), fathers with current symptoms were more likely to have reported that the child's mother had felt sad, blue or depressed, or lost interest in most things that usually gave her pleasure as some time since the birth of their child as compared to fathers without symptoms (54.1% vs. 39.1% respectively).

Finally, upon examining the direct relationship between depressive symptoms and parenting stress, no significant relationship was found ($p = 0.154$) even though fathers with current symptoms had a higher mean parenting stress score than fathers without depressive symptoms (5.3 vs. 4.3 respectively).

4.4.3 Multivariable Association between Parenting Stress and Depressive Symptoms

The main aim of this study was to examine the relationship between parenting stress and depressive symptoms. Table 4.3 shows the models, which were built in a progressive manner, used to examine this relationship. In model 1, individual father characteristics that were significant at $p < 0.10$ in the bivariate analysis were pooled. These covariates included age, drug use, impulsivity, and previous depressive symptom history. Both drug status and depressive symptom history remained significant in the adjusted model. Age and impulsivity lost significance when all four covariates were used to examine the relationship between parenting stress and depressive symptoms. In adjusted model 1, for every point increase in parenting stress score, the odds of African American fathers reporting current depressive symptoms were 1.09 (95% CI: 0.79, 1.50).

In model 2, contextual characteristics that were significant at $p < 0.10$ were pooled. These covariates included relationship quality, employment, and incarceration history. While significant at the bivariate level, all three covariates fell below the level of statistical significance when added to the second model. In adjusted model 2, for every point increase in parenting stress score, the odds of African American fathers reporting current depressive symptoms were 1.12 (95% CI: 0.92, 1.37).

In model 3, the significant individual level covariates were added to the significant contextual level covariates. Both drug status and depressive symptom history remained significant, suggesting persistent domain influence for these individual characteristic covariates whereas all three contextual level covariates fell below the level of statistical significance, suggesting less domain influence for these covariates. In adjusted model 3, for every point

increase in parenting stress score, the odds of African American fathers reporting current depressive symptoms were 1.12 (95% CI: 0.80, 1.56).

For model 4, the final model, significant child characteristics were added to the model. Child gender was the only covariate that was significant at the bivariate level. The gender covariate remained statistically significant when added with the other covariates to formulate model 4, demonstrating domain specific influence. Both drug status and depressive symptom history, individual characteristics, also remained significant in model 4. The contextual covariates remained non-significant when examined in the model. In adjusted model 4, for every point increase in parenting stress score, the odds of African American fathers reporting current depressive symptoms were 1.14 (95% CI: 0.80, 1.64).

4.4.4 Sensitivity Analysis

A sensitivity analysis was performed pertaining to the covariate of father involvement. For assessment of father involvement in the Fragile Families survey, fathers who had not seen their child in the past 30 days skipped answering this set of questions, which resulted in 15.75% (n= 152) of values for this variable missing. For the initial and final analyses in the current study, mean values were imputed for the total 16.79% (n= 162) of the missing data. Secondly, a sensitivity analysis was run imputing the value of zero instead of the mean value for missing cases for this variable. Imputing a value of zero for missing cases resulted in a mean number of days for father involvement of 2.9 versus 3.5 (range 0-7 days), which was obtained when the mean value was imputed. In bivariate analysis, fathers who reported current depressive symptoms reported father involvement an average of 2.15 days per week as compared to 3.33 days per week for fathers not reporting current depressive symptoms. The

difference in means was not significant at $p = 0.054$, similar to the relationship when the mean value was imputed ($p = 0.240$).

Father involvement, with a zero imputed value for missing, was added along with the individual, contextual, and child covariates that were significant at $p < 0.10$ in the bivariate analysis to create a regression model to look at the relationship between parenting stress and depressive symptoms. In the adjusted model, for every point increase in parenting stress score, the odds of African American fathers reporting current depressive symptoms were 1.15 (95% CI: 0.79, 1.68), similar to what was obtained when the mean value for father involvement was imputed, 1.14 (95% CI: 0.80, 1.64).

A second sensitivity analysis was performed to examine the relationship between parenting stress and depressive symptoms when parenting stress was dichotomized into high versus low parenting stress levels (Appendix 4.1). To begin, fathers who scored 5 or greater on the parenting stress measure were placed in the high parenting stress category. This cut-off, which placed approximately a third of the fathers in the high stress category, is similar to the cut-off used by Crnic (2005), which designated mothers who scored in the highest 30% as 'high stress'. Each of the 4 models was rerun to examine the relationship between high parenting stress and current depressive symptoms. In the adjusted model 4, the relationship between high parenting stress and depressive symptoms was not significant with the odds of African American fathers with high parenting stress having current depressive symptoms, as compared with fathers with low parenting stress, resting at 1.28 (95% CI: 0.28, 5.81). Further analyses were run with multiple cut-offs for high parenting stress ranging from 3 to 11. All adjusted models demonstrated no significant relationship between high parenting stress and current depressive symptoms.

4.5 DISCUSSION

Interest in the relationship between parenting stress and depression and depressive symptoms is mounting (DeMontigny, 2013; Vismara, 2016). However, previous work in this area has been limited to coupled, or to racial majority or racially mixed groups of fathers (Bronte-Tinkew, 2007; Lee, Y., 2012; Wee, 2015). The purpose of this study was to examine the relationship between parenting stress and depressive symptoms in African American fathers. This study used data from the Fragile Families and Child Wellbeing Study to obtain information from and about African American fathers. Though use of multiple logistic modeling, this study did not find a significant relationship between parenting stress and depressive symptoms. A discussion of the study's findings as it compares to the broader body of related research and to future implications is given below.

Relationship between Parenting Stress and Depressive Symptoms

Consistent with other studies (DeMaris, 2013; Fagan, 2014; Halpern-Meekin, 2016; Hildingsson, 2014a; Kim, 2015; Saisto, 2008; Bronte-Tinkew, 2010b), this study found that the majority of African American fathers reported some degree of parenting stress. This finding supported the use of the Parenting Stress Model as a framework to address the study's main objective. The framework identified potential factors that were both related to depressive symptoms and potentially assistive in examining the relationship between parenting stress and depressive symptoms. Consistent with Abidin's Parenting Stress Model, variables from each of three domains, which included parent, contextual, and child characteristics, had a significant relationship with the outcome of depressive symptoms. However, overall results obtained from the regression models found no significant relationship between parenting stress and depressive symptoms in African American fathers. As this study was the first study known to the author to

look at the direct relationship between parenting stress and depressive symptoms among African American fathers specifically, its comparison to other studies is limited.

The finding of no significant relationship between parenting stress and depressive symptoms in African American fathers is contrary to findings from studies of racially mixed samples of urban fathers (Hernandez, 2012; Lee, Y., 2012; Bronte-Tinkew, 2007). In the study by Hernandez (2012), a direct relationship was found between parenting stress and depressive symptoms, however, parenting stress was assessed as a mediator in the relationship between relationship status and depressive symptoms. To fulfill that study's objective, covariates were selected to examine a different relationship than that examined in the current study. In addition, while Lee, Y. (2012) found a relationship between parenting stress and depressive symptoms, parenting stress was identified as a direct risk factor for depressive symptoms when looking at the relationship between age status of fathers and depressive symptoms. Finally, when Bronte-Tinkew (2007) looked at parenting stress as an outcome as compared to a predictor, a significant relationship with depressive symptoms was found when controlling for variables related to parenting stress versus depressive symptoms as done in the current study.

Main explanations for the difference in findings among studies centers on each study's primary objective, outcome of interest, and availability and selection of control variables. The current study's approach identified and included specific variables that fell within the 3 domains recognized in the Parenting Stress Model, and some variables, while significant in the literature, such as maternal depression, were not included in the models as control variables if they were not significant within the domains. Thus, while this study included and controlled for variables that were both similar to and different from the ones used in other studies, they were chosen to examine a different relationship, and as a likely result, netted a different outcome.

Also contrary to our findings, Wee (2015) found that higher paternal stress scores during early pregnancy were associated with depression scores in later pregnancy when controlling for partner's depressive symptoms, perceived support, and sleep quality. Positive relationships were also seen between parenting stress and depression among fathers in other studies, when controlling for age, income, and miscarriage experience (DeMontigny, 2013), with paternal depression also influenced by depression in mothers (Vismara, 2016). While several studies have found maternal depression or depressive symptoms to be predictive of or associated with paternal depressive symptoms (Vismara, 2016; Ngai, 2015; Bradley, 2011; Wee, 2011), the current study did not find such a relationship. While fathers in the above studies consisted primarily of white, highly educated, mid-high income, married fathers (DeMontigny, 2013; Vismara, 2016), over 40% of the fathers in the current study were not in a married or romantic relationship with the child's mother. It is feasible that the lack of a romantic or physical bond could lessen the father's exposure to the mother's mental health and thus lessens its potential influence. Interestingly however, while neither mom's report of her own depressive symptoms or the father's view of mom feeling sad or depressed since the birth of the child were significant at the bivariate level, the relationships to the outcome were different. At the bivariate level, mom's report of her current depressive symptoms reduced the odds of fathers reporting current depressive symptoms by 17% ($p = 0.857$). However, if the father perceived that the mother had felt sad or depressed at anytime since the birth of their child, the odds of him reporting current depressive symptoms increased by 83% ($p = 0.254$). Additional studies could compare how subjective versus objective maternal depressive symptoms influence depressive symptoms among fathers in general and African American fathers in particular.

Differing depression and depressive symptomology assessment tools could also account for finding variation among studies. In the study by Wee (2015), paternal stress was assessed through the Depression, Anxiety and Stress Scale, and models controlled for partner's depression symptoms, perceived support and sleep quality. While DeMontigny (2013) and Vismara (2016) used the Parenting Stress Index to assess for parenting stress, the Edinburgh Postnatal Depressive Scale was used to assess for paternal depression. One of the common challenges in comparing studies is the different tools used to measure depression and depressive symptoms and the different output generated (Wee, 2011). For instance, in using the self-report Depression, Anxiety and Stress Scale, Wee (2015) found that 4-4.7% of the fathers scored above the cut-off range for depression and Kerstis (2016) found that 9% of the fathers had postpartum depression using the Edinburgh Postnatal Depressive Scale.

Finally, a challenge exists in comparing findings due to the varying periods in parenthood in which depressive symptoms are assessed. Some of the comparative studies of paternal parenting stress and depression assessed parenting stress either during the antenatal period or during the postpartum period (Wee, 2015; DeMontigny, 2013; Vismara, 2016). In the current study, assessment occurred approximately five years after the onset of fatherhood for the focal child and after greater changes in relationship statuses occurred. While the levels of parenting stress and role strain have been noted to remain steady in the first 5 years among a sample of urban fathers, relationship statuses were found to greatly fluctuate (Hernandez, 2012). And despite the fact that relationship status was not significantly associated with depressive symptoms in the current study, relationship quality, which can respond to changes in relationship status, was found to be significantly associated with fathers reporting depressive symptoms.

Strengths and Limitations

The study contained several strengths. First, this study contains results from a large sample of African American men who represent an understudied population of resident and nonresident urban fathers. Previous studies that have looked at the relationship between stress and depression specifically in African American fathers contained a small number of men (Bamishigbin, 2017). Larger sample sizes enable the ability to detect smaller differences in relationships within studies (Pagano, 2000).

A second strength of this study is the use African American fathers' self-reports, including their perceptions of parenting stress and relationship quality. Multiple factors and background characteristics, such as psychological and cultural issues, are noted to influence fathers' behaviors (Coley, 2001) and using information obtained directly from fathers ensures more convincing answers to our study questions about fathers' perspectives (Marsiglio, 2000), as they are the experts of their experiences.

In addition to the identified strengths, the study contained several limitations. Of the 2407 fathers identified as African American in the baseline study, 75% completed the baseline interview and 64% completed the 5-year interview. This attrition rate was higher than for the overall sample at the 5-year follow-up, which was 70% (Bendheim-Thoman, 2008). The use of weights helped to account for this limitation. Similarly, the main predictor variable parenting stress contained a high number of missing values. While the use of mean imputation increased our sample of fathers, this action reduced the measure's overall variance.

A second limitation was that the current study used a cross sectional design to examine the relationship between parenting stress and depressive symptoms. This restricted the ability to assess for time ordering of events and causation. In a study by Wee (2017), it was found that

high parenting stress in early pregnancy was associated with depression scores later in pregnancy and the relationship between the two variables was found to be bidirectional in another study (Hernandez, 2012). Also due to the cross-sectional design, the study was neither able to assess for changes in parenting stress across the first five years of parenting nor able to note fluctuations in depressive symptoms over time as found in a sample of African American fathers (Sinkewicz, 2011).

A third limitation for this study concerns the selected variables used in examining the relationship between parenting stress and depressive symptoms. There is the possibility that other factors should be included in the framework that would have allowed for a more detailed examination of the parenting stress-depressive symptom relationship. For instance, coping styles and racial discrimination has been found to affect the report of depression (Bamishigbin, 2017), however, measures were not available in the Fragile Families data set.

A final limitation of the study pertains to the outcomes of interest, depressive symptoms. The current study uses the CIDI- SF to measure the probability of having major depression if given a complete depression assessment and is not diagnostic of depression.

Summary

Implications and Recommendations

The Parenting Stress model was employed to identify variables considered significant in examining the relationship between parenting stress and depressive symptoms. Contrary to prior studies, no significant relationship was found in the direct relationship between parenting stress and depressive symptoms or in models containing variables to assist in examining this relationship. Findings hold multiple implications nonetheless. Results from the current study show that the prevalence of depressive symptoms among African American fathers is above the

12-month prevalence rate of depressive disorders found in the general adult population (Kessler, 2003; Kessler, 2005), similar to rates of paternal depression found in other populations (Paulson, 2010; Cameron, 2016), and even higher when specific socio-demographic factors are considered. The implication of this finding supports the need to implement depression screening for fathers of school aged children and implement and support programs that target associating factors, such as drug use and unemployment, which could potentially lessen the burden of depressive symptoms among African American fathers.

In addition, findings support the call for future research. Further studies are needed to expand the assessment of parenting stress, particularly what factors contribute to it in African American fathers. The full Parenting Stress Index could be employed to ascertain which additional factors, if any, lie along the pathway that lead from parenting stress to depressive symptoms in African American men. Similarly, additional studies could explore what affiliation parenting hassles, which was found to be associated with psychological distress (Creasey, 1996), has with depressive symptoms for African American fathers. Daily hassles, life events, and the individual's environment are other factors, in the contextual domain identified by Abidin (1992), suggested to contribute to parenting stress. Next, by maintaining use of the Parenting Stress Model, future research could examine what other paternal health outcomes or behaviors are impacted by the presence of parenting stress.

Conclusion

The rates of depression and depressive symptoms for African American fathers have been found to be both similar and higher than those found among the general population of fathers (Paulson, 2010; Cameron, 2016; Sinkewicz, 2011; Bamishigbin, 2017; Anderson, 2005). The tangible and intangible costs of depression for African American fathers are high, having

potential impacts on their health, their relationships with their partners and children, as well as their contribution to and burden on society. While this study has contributed to the limited body of literature that has looked at the relationship between parenting stress and depressive symptoms among African American fathers, additional work is needed to explore how other features of parenting stress may relate to the experience and expression of depression and depressive symptoms with the goal of reducing depression's associated costs for African American fathers.

TABLE 4.1- Descriptive Statistics of African American Fathers in Year 5 of the Fragile Families Study (n= 965)

Variable	Percent or Mean \pm SE
Age (%)	
<26 years	17.8
27-33 years	31.1
> 34 years	51.1
Education (%)	
Less than High School	23.7
High School or equivalent	48.7
Some College or more	27.6
Smoker (%)	46.2
Alcohol Use (%)	20.2
Drug Use (%)	12.5
Impulsivity Level (0-6)	1.6 \pm 0.1
History of depressive symptoms (%)	17.2
Current depressive symptoms (%)	9.7
Relationship status (%)	
Married	36.0
Romantic	20.2
Divorced/separated	5.6
Friends	28.4
No relationship	9.9
Relationship quality (1-5)	3.6 \pm 0.1
Working (%)	75.9
Previous or current incarceration (%)	52.3
Number of children (1-10)	2.9 \pm 0.1
Multi-partner fertility (%)	34.2
Father involvement (0-7)	3.7 \pm 0.1
Co-parenting (0-12)	10.2 \pm 0.2
Perceived Support (0-4)	3.2 \pm 0.1
Male child (%)	54.9
Child temperament (0-12)	6.4 \pm 0.3
Dad's view mom's depression (%)	40.6
Parenting Stress (0-12)	4.4 \pm 0.3

Note: Weighted values

TABLE 4.2- Unadjusted Bivariate Association between Presence of Current Depressive Symptoms and Covariates among African American Fathers in Year 5 of the Fragile Families Study (n=965)

Variable	Current Depressive Symptoms	No Current Depressive Symptoms	P-value
Age (%)			0.055
< 26 years	37.8	15.7	
27-33 years	26.6	31.6	
> 34 years	35.6	52.7	
Education (%)			0.345
Less than High School	39.0	22.1	
High School or equivalent	40.6	49.6	
Some College or more	20.4	28.4	
Smoker (%)	63.5	44.4	0.139
Alcohol Use (%)	24.4	19.7	0.628
Drug Use (%)	46.2	8.9	0.000
Impulsivity Level (0-6)	2.2 ± 0.3	1.5 ± 0.1	0.035
History of depressive symptoms (%)	40.6	14.7	0.011
Relationship status (%)			0.196
Married	10.3	38.8	
Romantic	33.1	18.8	
Divorced/separated	5.8	5.6	
Friends	35.6	27.6	
No relationship	15.3	9.3	
Relationship quality (1-5)	3.0 ± 0.3	3.7 ± 0.1	0.037
Working (%)	53.4	78.3	0.012
Previous/current incarceration (%)	75.9	49.8	0.075
Number of children (0-10)	3.4 ± 0.6	2.8 ± 0.1	0.302
Multi-partner fertility (%)	21.2	35.6	0.305
Father involvement (0-7 days)	3.3 ± 0.3	3.7 ± 0.1	0.235
Co-parenting (0-12)	9.4 ± 0.5	10.3 ± 0.2	0.107
Perceived Support (0-4)	3.0 ± 0.2	3.2 ± 0.1	0.336
Male child (%)	77.7	52.5	0.004
Child temperament (0-12)	7.0 ± 0.6	6.3 ± 0.4	0.295
Mom's age	23.7 ± 2.1	25.5 ± 0.7	0.439
Dad's view mom with depression (%)	54.1	39.1	0.238
Parenting Stress	5.3 ± 0.6	4.3 ± 0.4	0.154

Note: Weighted values; Mean ± Standard Error

TABLE 4.3- Logistic Regression Models of the Effects of Parenting Stress on Depressive Symptoms among African American Fathers in Year 5 of the Fragile Families Study (n= 965)

	Model 1: Individual Characteristics		Model 2: Contextual Characteristics		Model 3: Individual & Contextual Characteristics		Model 4: Individual, Contextual & Child Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Parenting Stress	1.09	(0.79, 1.50)	1.12	(0.92, 1.37)	1.12	(0.80, 1.56)	1.14	(0.80, 1.64)
Age								
<26 years	2.44	(0.53, 11.29)			1.78	(0.39, 8.10)	1.69	(0.41, 7.03)
27-33 years	0.83	(0.21, 3.20)			0.61	(0.14, 2.70)	0.53	(0.14, 1.95)
> 34 years	1.00							
Drug use	6.80	(2.30, 20.15)			5.63	(1.39, 22.76)	6.35	(1.57, 25.75)
Impulsivity	1.12	(0.75, 1.67)			1.00	(0.62, 1.59)	0.97	(0.61, 1.55)
History of depressive symptoms	4.53	(1.49, 13.82)			4.04	(1.23, 13.30)	5.22	(2.09, 13.08)
Relationship quality			0.67	(0.45, 1.00)	0.76	(0.48, 1.21)	0.71	(0.44, 1.12)
Employment status			0.39	(0.14, 1.07)	0.53	(0.12, 2.45)	0.58	(0.13, 2.56)
Previous/current incarceration			2.76	(0.82, 9.31)	2.43	(0.74, 8.00)	2.05	(0.62, 6.77)
Male child							4.90	(1.64, 14.63)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values

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CHAPTER 5: EXAMINING THE RELATIONSHIP BETWEEN PARENTING STRESS AND SELF-RATED HEALTH AMONG AFRICAN AMERICAN FATHERS

5.1 ABSTRACT

African American men are leading in several areas of adverse health and social outcomes. While African American fathers are subject to the same physical and environmental factors that can influence the appraisal of health as African American men, African American fathers are also required to factor in the demands and responsibilities of parenthood. Self-Rated Health (SRH) has been recognized as a reliable measure of current health standing and future health status and behaviors. While previous research has looked at parenting stress and SRH among fathers and SRH among African American men, research is lacking in examining parenting stress and SRH among African American fathers. Using the Parenting Stress Model and data from the Fragile Families and Child Wellbeing Study, the current study used logistic regression to examine the odds of poor/fair SRH as a function of parenting stress in a sample of 965 African American fathers. SRH was assessed as either poor/fair or good/very good/excellent and parenting stress was assessed using four aggravation in parenting questions.

Results indicated that parenting stress was not significantly associated with SRH for African American fathers (OR: 1.26; 95% CI: 0.96, 1.65). While subsequent analyses showed a relationship between parenting stress and poor/fair SRH when fathers reported high parenting stress (OR: 10.84; 95% CI: 2.63, 44.70), the number of fathers in the high stress category was small. Implications of the study support the call for additional research with larger samples and an expanded assessment of contributing factors for parenting stress in African American fathers.

5.2 INTRODUCTION

Self-Rated Health

Self-rated health (SRH) has been a frequently used measure of general health in both clinical assessments and health research. Studies show that this measure predicts health prognosis (Engstrom, 1999), respiratory exacerbations and hospitalizations (Farkas, 2010), use of health services (Jylha, 2009), cancer screening (Mitchell, 2013), and more commonly mortality (Tamayo-Fonseca, 2013; Razzaque, 2014). Longitudinal studies have shown that lower ratings of SRH serve as a strong predictor of future mortality even when controlling for objective measures of health (Nery Guimaraes, 2012) or socio-demographic factors (Razzaque, 2014). In a review of 27 community studies, of varying follow-up periods (Idler, 1997), and in a 30-year longitudinal study (Bopp, 2012), SRH was found to have an independent effect on mortality with the results showing a dose-response pattern- the dose the level of SRH and the response, the probability of mortality.

Furthermore, while SRH ratings have been shown to be consistent with objective or clinical measures (Wu, 2013), it is also suggested to be more powerful to assess multiple dimensions of wellbeing (Goldman, 2004) and has been touted as being multidimensional and a holistic measure of both physical and mental health (Singh-Manoux, 2006). Jylha (2009) remarks that SRH assessments are the outputs of cognitive processes that consider both an individual's context and culture alongside their biological and physiological state. In sum, SRH is an established measure to evaluate multiple aspects of health behaviors and health status and predictive of future health outcomes.

5.2.1 SRH and Men

Several individual demographic and biomedical and behavioral health risk characteristics have been found to be predictive of reports on SRH. Age, marital status, smoking status, educational status, use of chronic medications, diagnosis of chronic disease, physical activity level, frequency of fast food intake, and BMI have been shown to be associated with or predictive of future SRH reports (Lindstrom, 2009; Froom, 2004; Hammig, 2014; Satia, 2004). In addition, racial differences have been noted in SRH reports. In studies of primarily mid-older aged adults, more African American men reported their health as fair as compared to White men (Weinrich, 2001; Beck, 2014).

Beyond individual characteristics, prospective studies that have looked at the influence of the environment on SRH have found that living in neighborhoods with greater deprivation was either associated with (Poortinga, 2007) or predictive of developing (Xiao, 2017) poorer SRH. In both men and women, perceived discrimination (Cuevas, 2013; DuMont, 2016; Earnshaw, 2016) and subjective social status (Thompson, 2014) has been shown to be associated with ratings of SRH. Among men, a large cross-sectional study in Sweden found that low social capital and low economic capital was independently associated with poor SRH (Ahnquist, 2012). Employment status has also been shown to be associated with SRH in men. In both cross-sectional and longitudinal European studies, men who experienced work place stress, were unemployed, or who experienced job loss had increased risks of poor SRH (Hakansson, 2010; Kaleta, 2008; Poortinga, 2007) and those ratings persisted even after reemployment (Huijts, 2015). In contrast, Savoy (2014) found that among a large sample of African American adults, financial strain, more than employment status, was associated with lower ratings of SRH. Similarly, higher financial stress scores were also predictive of poorer SRH in a large, racially

and age diverse, socioeconomically disadvantaged group of men and women (Lantz, 2005). In sum, both modifiable and non-modifiable factors have been identified as influences on men's report of their SRH. These factors are varied and have been identified at the individual, interpersonal, and societal levels.

5.2.2 SRH and Fathers

Although extensive research has been conducted on SRH, less work has been conducted looking specifically at SRH among fathers. While the biological and physiological components of the SRH measure may not vary between men who are fathers and those who are not, the contextual and cultural contributions may. Among studies with expectant and new fathers, Hildingsson (2014b) found that fathers who experienced childbirth related fear reported poorer health at 1 year postpartum. In a literature review (Plaintin, 2011), expectant fathers who were recognized in their new position of having become a father, reported better physical and psychological health.

Relationship status can affect fathers' appraisals of SRH. Canadian cross-sectional studies of lone and partnered fathers found that lone fathers had higher odds of poor/fair SRH, mostly explained by lower income and higher rates of unemployment (Janzen, 2006; Chiu, 2016). Westin (2006) found similar results in a large cross-sectional study with Swedish fathers, finding that single fathers reported worse SRH than coupled partners, with differences largely explained by financial stress and origin of birth. In a longitudinal study looking at paternal relationship status and SRH in the US, Meadows (2009) found that stably married and stably co-habiting fathers reported higher SRH than stably single fathers, whereas Hernandez (2012) did not find that relationship status had an influence on SRH. In sum, factors that are initiated or are

subject to become pronounced by the status of fatherhood have also been found to contribute to subjective measures of health for men.

5.2.3 SRH and Parenting Stress

The influence of parenting stress on SRH has yielded mixed results. In exploring predictors of poorer SRH among new fathers, Schytt (2011) found an association with wrong timing of pregnancy, parental stress, and dissatisfaction with partner support. Also, in a racially and age diverse longitudinal study involving both men and women, Lantz (2005) found that parental stress was related to poor or fair health. In contrast, Hernandez (2012) did not find a significant relationship between parenting stress and SRH among a racially diverse group of urban fathers. In sum, men who are fathers may have additional factors surrounding parenting and parent relationships that could impact their reports of SRH beyond the conventional influences.

5.2.4 Summary of SRH in Fathers

SRH as a measure of an individual's overall wellbeing has been used and studied extensively in national and international populations to predict health behaviors and outcomes and more generally, mortality. As it has been recognized that SRH is a mixed measure of an individual's biological and contextual assessments, the above review presents findings highlighting both elements. Examination of the contextual influences on fathers' reports of SRH has primarily fallen under the category of employment and relationships, with the limited number of latter studies providing mixed results on the effect relationship status has on SRH. In addition, the studies that have looked at fathers' assessment of parental stress and SRH have also yielded mixed results. Finally, while SRH has been explored and reported on in African American men, the literature is lacking foundationally in examining SRH in African American

fathers and even further in how their experience with parenting stress and other contextual factors, beyond the commonly explored elements, can affect their reports of SRH. The aim of the current study is to address this gap by examining the relationship between parenting stress and SRH among African American fathers.

5.3 METHODS

5.3.1 Theoretical Orientation

Abidin and Burke developed The Parenting Stress Model as a guide for the construction of a Parenting Stress Index (PSI), a tool designed to empirically evaluate the pathways suggested to contribute to dysfunctional parenting and child outcomes, with stress as the central construct (Abidin, 1990; Abidin, 1992). The Parenting Stress Model suggests that parenting behavior is influenced by multiple sociological, environmental, behavioral, and developmental factors (Abidin, 1992). Parental stress is denoted as function of three domains- parent characteristics, child characteristics, and demographic or situational characteristics, such as work, environment, marital relationship, daily hassles, and life events (Abidin, 1992). The Parenting Stress Model is deemed suitable to address the study's focus on parenting stress in African American fathers as this framework has commonly been used to look at parenting stress in other populations (Golfenshtein, 2016; Ponnet, 2013; Kim, 2015; Oddi, 2013). In addition, while the Parenting Stress Model was created to demonstrate the suggested pathways that contribute to dysfunctional parenting and child outcomes, this study will adjust the model to examine the suggested pathway that parenting stress may be associated with SRH in African American fathers.

As indicated in the study's conceptual framework (Figure 5.1), the first domain contains individual father characteristics that have been suggested to contribute to parenting stress and

have been found to be associated with SRH. These characteristics include age, education, and substance use. The second domain consists of contextual characteristics and includes employment, income, incarceration history, relationship status, relationship quality, social support, father involvement, number of children, multi-partner fertility, and co-parenting quality.

Finally in the conceptual framework, the third domain representing child characteristics is presented. With the child viewed as one of three elements that contribute to parenting stress, both child gender and temperament are evaluated as covariates.

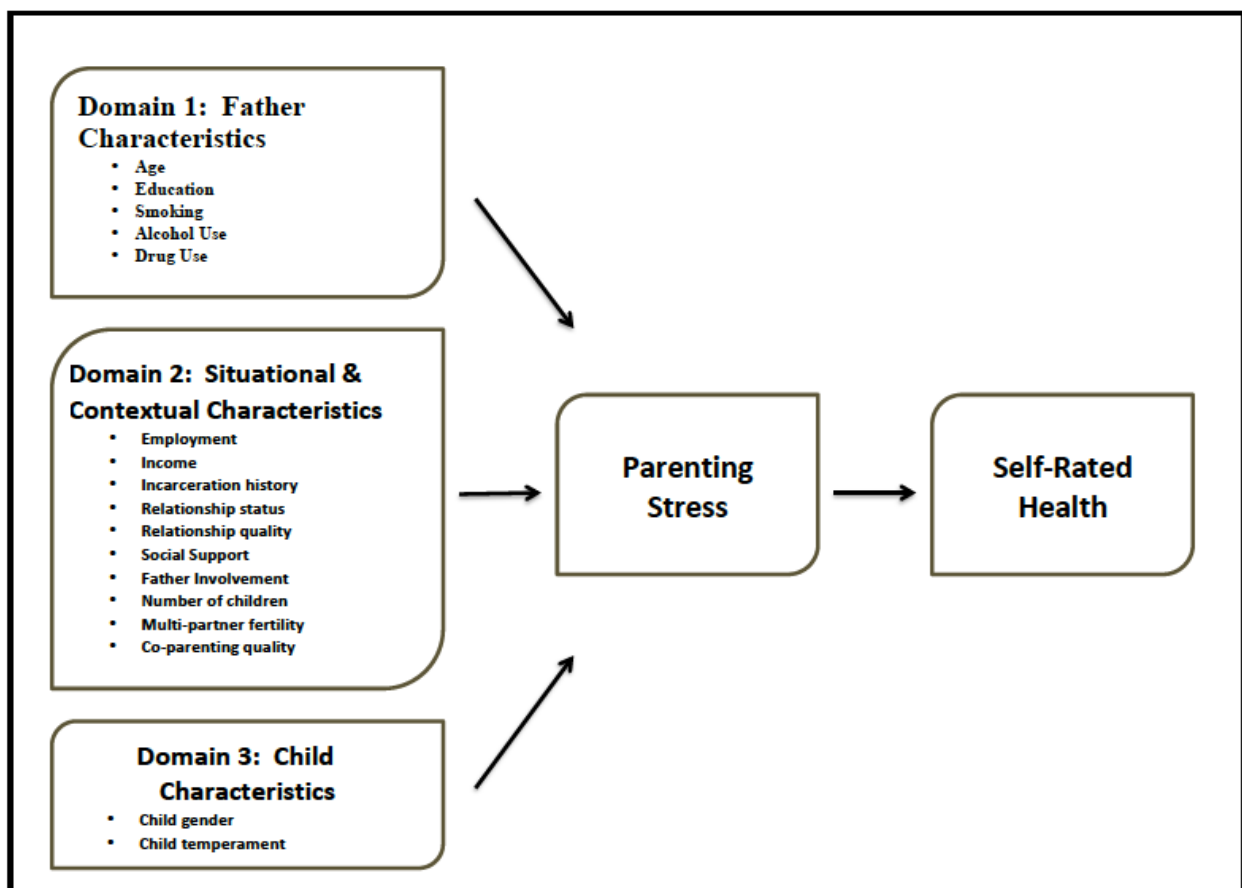


Figure 5.1 Relationship between Parenting Stress and Self-Rated Health among African American Fathers

5.3.2 Study Sample

Information from and about African American fathers was obtained using data from the Fragile Families and Child Wellbeing Study (hereafter Fragile Families; Fragile Families, 2016). Fragile Families is a longitudinal study that has followed a cohort of mostly unwed new parents and their children identified as “fragile families” because of the multiple risk factors associated with non-marital childbearing, a higher risk of poverty, and the susceptibility for relationship instability and dissolution. The purpose of Fragile Families was to examine the conditions and capabilities of new unwed parents and the well being of their children. Data were collected on approximately 4700 births, 3600 non-marital and 1100 marital births, in 75 hospitals in 20 cities across the United States beginning in 1998 with the last collection completed in 2014, at the 15-year follow-up mark. Data collection used a 3-stage sampling design. First, a stratified random sample of all US cities with a population greater than 200,000 was conducted, followed by a sampling of hospitals within those selected cities, then lastly by a sampling of births within those hospitals. Seventy-seven US cities with populations of 200,000 or more were rated and grouped according to the areas of welfare generosity, the strength of the child support system, and the strength of the local labor market. Among the selected cities, hospitals were chosen from among those hospitals that had the highest percent of non-marital births. Within each hospital, random samples of both married and unmarried births were conducted until preset quotas were met with the married sample to serve as a control group. Replicate weights are used in place of stratum and primary sampling unit variables to estimate sample variance. Both city level and national level weights are available for use in analysis. Weighted, the data are representative of non-marital births in either each of the 20 cities or representative of non-marital births in US cities with populations over 200,000 (RWJ, 2014; McLanahan, 2003; Reichman, 2001; Bendheim-Thoman, 2008).

Fathers were considered eligible for the study if the mother of his baby had completed a baseline interview. Eligible mothers were initially interviewed after their child's birth while the mother was still in the hospital. At baseline, fathers were interviewed in person when they visited the mother in the hospital or by telephone outside of the hospital. The mothers reported information on fathers who could not be contacted. Follow-up structured interviews were conducted separately with both parents in-person or by telephone when their children reached their first birthday and by telephone at the third, fifth, ninth and fifteenth birthdays (Reichman, 2001; RWJ, 2014; Bendheim-Thoman, 2008).

Seventy-eight percent of all eligible fathers completed a baseline interview. Of the full sample, 2407 fathers were identified as African American at baseline. Of the 2407 African American fathers, 75% completed the baseline interview and 66%, 67%, and 64% completed the 1, 3, and 5-year interviews, respectively (Bendheim-Thoman, 2008). The current study uses data from the fathers' 5-year interview. Of the 1541 African American fathers who completed the 5-year interview, 965 participated in the national level survey and are included in the current study.

5.3.3 Measures

Dependent Variable

Self-Rated Health

SRH is measured with the single question "In general, how is your health?" with responses falling on a five point scale of "Excellent" "Very good" "good" "fair" or "poor", with higher scores representing better health. The current study assesses SRH as a dichotomized value, poor/fair and good/very good/excellent, which is consistent with reporting styles used in previous studies (Chiu, 2016; Janzen, 2006), including those using Fragile Families data (Wilson, 2001).

Independent Variable

Parenting Stress

Parenting Stress is conceptualized through aggravation in parenting questions developed by Child Trends to measure the amount of parenting stress brought on by changes in employment, income, or other factors in the parent's life (Fragile Families, Scales Documentation, 2008). The original 9-item scale contains items from Aibdin's (1995) Parent Stress Inventory. Fragile Families utilizes a modified version of the full scale which consists of the four following statements "Being a parent is harder than I thought it would be", "I feel trapped by my responsibilities as a parent", "I find that taking care of my child (ren) is much more work than pleasure", and "I often feel tired, worn out, or exhausted from raising a family". Each statement is rated using a 4-point Likert-scale ranging from Strongly Agree" to "Strongly Disagree" with a final score noted as an average score ranging from 1-4 with higher scores representative of a greater level of parenting stress. Previous studies using year 5 Fragile Families data have reported $\alpha = 0.58$ for fathers (Halpern-Meehin, 2016). Parenting Stress is assessed as a continuous variable, consistent with measures used in other Fragile Families studies (Berryhill, 2016; Cooper, 2009), with possible scores ranging from 0-12.

Covariates

The following covariates have been selected based on their associations with SRH in previous literature.

Age. Increasing age has been predictive of lower SRH (Froom, 2004; Ayyagari, 2012). In this study, paternal age is assessed as a categorical variable, grouping fathers as less than 26, 27-33, and older than 34 years of age. This age group is similar to that used by other Fragile Families researchers (Castillo, 2012).

Education. Level of education has been associated with SRH (Nery Guimaraes, 2012; Lee, 2016), with less than a high school education being predictive of lower reports of SRH (Weinrich, 2001). Education is assessed by the father's report of highest education level at study baseline using an ordinal scale: Less than high school diploma, high school diploma or equivalent degree, some college or trade, and 4 year college degree or higher. In this study, fathers with a 4 year college degree or higher are combined with fathers with some college or trade to create a 3 categorical variable for education level, as less than 5% of the sample had a four-year college degree or more. This grouping has also been used by other studies using Fragile Families data (Bronte-Tinkew, 2010; Carlson, 2008; Dush, 2011).

Smoking Status. Smoking status has been shown to be predictive of poorer SRH (Froom, 2004; Hammig, 2014; Nery Guimaraes, 2012) and contrarily, associated with higher reports of SRH (Goldman, 2004). Smoking status is assessed with the following question: "In the past month, did you smoke cigarettes?" This covariate is assessed as a binary variable whether fathers respond "Yes" or "No".

Alcohol Use. Mixed results have been found in the association between alcohol use and SRH. While Taylor did not find any association, DuMont (2016) found that lower alcohol consumption increased the likelihood of poorer reports of SRH. Alcohol use is assessed with the question "What is the largest number of drinks you had in any single day during the past twelve months" with possible responses of none, between one and three, four to ten, eleven to twenty, or more than twenty drinks. Fathers were considered alcohol users if they consumed more than 4 drinks in a single day in the past 12 months (Fragile Families, Scales Documentation, 2008).

Drug Use. Regular use of illicit drugs has been reported to increase the likelihood of poorer reports of SRH (DuMont, 2016). To assess drug use, fathers were asked to report on the use of drugs on their own (without a prescription, in larger amounts than prescribed, or for a longer

period than prescribed) in the past twelve months. Fathers were considered drug users if they reported any drug use in the past 12 months (Fragile Families, Scales Documentation, 2008).

Employment. Employment status has been identified as a predictor of SRH (Huijts, 2015; Kaleta, 2008). Employment status is assessed from the following questions: “Last week, did you do any regular work for pay” with “Yes” and “No” as response options.

Income. Income has been associated with SRH (Janzen, 2006; Nery Guimaraes, 2012), with better reports of SRH increasing with higher income (Nyak, 2016). Income is assessed with the following question: “In the past twelve months, what was the total income of your household from all sources before taxes and other deductions? Please include your own income and the income of everyone living with you.” Income is assessed as a continuous variable.

Incarceration history. Current and history of recent incarceration has been associated with both lower and higher odds of poorer SRH (Curtis, 2011; Kim, 2015). A constructed dichotomous variable was created by Fragile Families based on both mothers’ and fathers’ reports to measure whether the father had ever been in jail with possible responses of not in jail/never in jail or in jail/ever in jail (Bendheim-Thoman, 2008).

Relationship status. Numerous studies have found a relationship between father’s relationship status and reports of SRH (Janzen, 2006; Chiu, 2016; Westin, 2006; Meadows, 2009).

Relationship status is assessed as a nominal variable derived from the following question: “What is your relationship with (Mother) now?” with the following response options “Married”, “Romantically involved”, “Separated”, “Divorced”, “Just friends”, and “Not in any kind of relationship”.

Relationship quality. Several studies have found an inverse relationship between relationship quality and perceived SRH (Bookwala, 2005; Markey, 2007; Umberson, 2006). Relationship quality is assessed with the question “In general, would you say that your relationship with her

(Mother) is excellent, very good, good, fair, or poor?” Responses were reverse coded to 1-5 so that higher scores represented higher quality relationships (Castillo, 2012).

Social Support. Gerich (2014) and Nayak (2016) found adults with larger support networks or good social support reported better health status. In contrast, Singh-Manoux (2006) did not find that social support was associated with men’s report of SRH. Perceived social support is measured with the following 4 items: “If you needed help during the next year, could you count on someone to loan you \$200?” “Is there someone you could count on to provide you with a place to live?” “Is there someone you could count on to help you with emergency child care?” “Is there someone you could count on to co-sign for a bank loan with you for \$1,000?” Response options are no (0) and yes (1). Values from the four items are summed to create a scale ranging from 0, indicating a low level of perceived social support, to 4, indicating a high level of perceived support. Fagan (2011) reported $\alpha = 0.77$ among a group of adolescent and adult fathers for this measure.

Father involvement. Greater father involvement has been associated with better reports of general health among fathers (Chan, 2017). Father Involvement is assessed by asking fathers how many days in a week they 1) sung songs or nursery rhymes, 2) read stories, 3) told stories, 4) played inside with toys, 5) told child that he appreciated something they did, 5) played outside in the yard, park, or a playground, 6) took the child on an outing, and 7) watched TV or a video together. Each response holds a value from 0, for none, to 7, for seven days a week, resulting in possible summative score ranging from 0 to 56 with higher scores indicative of more involvement (Waller, 2012). Total scores were transformed to create a score of 0-7 to provide an average number of days per week. Isacco (2010) reported $\alpha = 0.96$ for married fathers and $\alpha = 0.95$ for non-married fathers at year 1 and Fagan (2011) reported $\alpha = 0.91$ at year 3.

Number of children. Bourne (2009) reported that the number of children was a determinant of good health reports among men however, in a review by Bartlett (2004), mixed results were found on the influence number of children had on men's health. Number of children is assessed as a continuous variable.

Multi-partner fertility. Multi-partner fertility is assessed from the following question: "Does father have any children by someone other than mother?" This covariate is assessed as a binary variable whether fathers respond "Yes" or "No".

Co-parenting. Dissatisfaction with partner support was reported by Schytt (2011) to be a predictor of poorer SRH among new fathers. Among a sample of parents, Goldberg (2015) found physical health reports to be a predictor of co-parenting quality among mothers but not fathers. Questions to assess co-parenting support were developed by the Fragile Families researchers (Isacco, 2010). Co-parenting is measured using 6 items to assess the father's perception of trust, respect, and support from and communication with the mother in raising their child. The following statements were rated as "Always True" "Sometimes True" "Rarely True" or "Never True": "When (Mother) is with (Child), she acts like the mother you want for your child", "You can trust (Mother) to take good care of (Child)", "She respects the schedules and rules you make for (Child)", "She supports you in the way you want to raise (Child)", "You and (Mother) talk about problems that come up with raising (Child)", and "You can count on (Mother) for help when you need someone to look after (Child) for a few hours". Dush (2011) reported an $\alpha = 0.77$ for fathers at year five when the never true and rarely true replies were collapsed into the same group to create 3 response categories thus creating a continuous variable with scores ranging from 0-12.

Child gender. Male children was found to reduce several dimensions of mothers' report of quality of life, although not for the dimension of general health (Tychey, 2007), findings in

contrast to Kimura (2018), which found lower reports of SRH among mothers who had female children. However, among a group of older men, child gender did not have a significant impact on reports of SRH (Rahman, 2004). Child gender is assessed as a nominal variable of male or female.

Child temperament. Child temperament is assessed at child age one by asking fathers to rate on a 1-5 scale how alike (not at all to very much) the following three statements are to their child's behavior: He/She often fusses and cries, He/She gets upset easily, and He/She reacts strongly when upset. Sum scores were recoded to reflect a range of 0-12 with higher scores representing a more difficult temperament ($\alpha = 0.61$, Cardoso, 2010).

5.3.4 Analysis

Descriptive analysis was performed on the independent and dependent variables and on the covariates (Table 5.1). For the independent variable parenting stress and the covariates relationship quality, father involvement, social support, co-parenting quality, number of children, and child temperament the mean and range of scores are reported. For the dependent dichotomous variable SRH along with the covariates smoking status, alcohol use, drug use, employment status, incarceration history, multi-partner fertility, and (male) child gender, the percent distribution of each variable is reported. The percent distribution for African American fathers falling into each category for the covariates of age, education, and relationship status, is described.

Next in the analysis, we examined unadjusted bivariate associations between SRH and each covariate using either t-tests or chi-squared tests. In the last step of our analysis, we examined the relationship between parenting stress and SRH by regressing SRH on parenting stress and the predictors that were statistically significant at $p < 0.10$ with SRH at the bivariate level. Models were created and examined in a progressive fashion, assessing model

characteristics after predictors from domain 1, father characteristics, were included before proceeding to add predictors from domain 2, contextual characteristics. The resulting model characteristics were then assessed before adding predictors from domain 3, child characteristics. This method was done to examine for domain specific influences.

There were few variables that had no missing data. Of the variables that contained missing data, the percent ranged from less than 1% to 16% with one variable missing 29% of the data. Mean values were imputed for missing data (Allison, 2010) to preserve maximum sample size for analysis. All estimates and analyses used national weights to make the data representative of non-marital births in US cities with populations over 200,000 (Bendheim-Thoman, 2008). All analyses were conducted using STATA 14.0. The level of statistical significance was set at $p < 0.05$.

5.4 RESULTS

5.4.1 Descriptive Statistics

Table 5.1 presents the weighted demographic characteristics of the sample. Fathers' age ranged from 20-53, with 17.8% of fathers aged 26 or younger and 51.1% of the fathers aged 34 and older. In regards to education, 48.7% of the sample had a high school diploma or equivalent and 27.6% had at least some college education. A review of substance use revealed that 46.2% of fathers were current smokers, 20.2% were consumers of alcohol, and 12.5% participated in some form of drug use.

Thirty-six percent of the sample was married, 20.2% were in a romantic relationship, 28.4% were friends, and 9.9% had a no relationship status with the focal child's mother. The mean relationship quality rating was 3.6 indicating that on average, fathers reported that the quality of their relationship with the mother as good to very good. Seventy-five percent of the

fathers were working at the time of the survey and 52.3% were currently or previously incarcerated.

Fathers had an average of 2.9 children and thirty-four percent had multi-partner fertility, or children by more than one partner. Study participants reported father involvement an average of 3.7 days per week and a relatively high level of co-parenting quality, 10.2 on a scale of 0-12. Fathers also reported a moderately high level of perceived support, 3.2 out of possible score of 4. Over 54% of the fathers had a male child and the mean child temperament score was 6.4 on a scale of 0-12.

African American fathers reported an average parenting stress score of 4.4 on a scale of 0-12. Finally, 13% of the fathers reported their health as poor or fair.

5.4.2 Bivariate Association between SRH and Domain Characteristics

Individual Characteristics

Table 5.2 shows the unadjusted bivariate relationship between fathers who reported either poor/fair or good/excellent SRH and the covariates. There was a statistically significant relationship between SRH reports and age ($p = 0.012$). Over 76% of the fathers who reported poor/fair SRH were older than 34 years, as compared to 47.2% of the fathers who reported good/excellent SRH. There was no statistically significant relationship between SRH and education level ($p = 0.261$), although fewer fathers who reported poor/fair SRH had at least some college education as compared to fathers who reported good/excellent SRH (7.8% vs. 30.5%),

For substance use, there was a statistically significant relationship between fathers who reported poor/fair SRH as compared fathers who reported good/excellent SRH and current smoking ($p = 0.024$). However, no significant relationship was found between SRH reports and either alcohol use or drug use ($p = 0.840$ and $p = 0.517$, respectively).

Contextual Characteristics

The relationship between SRH reports and relationship status was not significant ($p=0.386$). However, it was observed that a higher percentage of fathers who reported poor/fair SRH were married as compared to fathers who reported good/excellent SRH, 52.1% vs. 33.6%. In contrast, a greater percentage of fathers who reported good/excellent SRH as compared to fathers who reported poor/fair SRH were in a romantic relationship, 21.8% vs. 9.7%. Relationship quality scores were similar between fathers who reported poor/fair SRH and fathers who reported good/excellent SRH, 3.2 vs. 3.7 ($p=0.245$).

More fathers who reported good/excellent SRH were employed as compared to fathers who reported poor/fair SRH, 77.0% vs. 68.4%, however the difference was not significant ($p=0.516$). Also, there was no significant difference between the two groups of fathers and incarceration history ($p=0.135$), even though a higher percent of fathers who reported good/excellent SRH were either currently or previously incarcerated, 55.2% vs. 33.1%.

The two contextual areas that demonstrated a significant association were number of children and multi-partner fertility. Fathers who reported poor/fair SRH were significantly more likely both to have a greater number of children and to experience multi-partner fertility 3.7 vs. 2.7 ($p=0.047$) and 65.2% and 29.5% ($p=0.014$).

Fathers who reported poor/fair SRH engaged in fewer father involvement activities during the week, 3.4 vs. 3.7 days, but the difference was not significant ($p=0.263$). Similarly, fathers who reported poor/fair SRH reported slightly lower co-parenting quality scores (10.0 vs. 10.3), but this difference again, was not significant ($p=0.629$). Perceived support appeared to have no association with reports of SRH with scores similar between fathers who reported poor/fair SRH and those who reported good/excellent SRH ($p=0.845$).

Child Characteristics

A male child was less common for fathers who reported poor/fair SRH as compared to fathers who reported good/excellent SRH (45.2% vs. 56.4%), however the difference was not significant ($p = 0.513$). In assessment of child temperament, a minimal difference in scores was found between the two groups of fathers ($p = 0.601$).

Finally, upon examining the direct relationship between SRH and parenting stress, fathers who reported poor/fair SRH had higher mean parenting stress scores than fathers who reported good/excellent SRH (6.6 vs. 4.0), however the difference was not statistically significant ($p = 0.130$).

5.4.3 Multivariable Association between Parenting Stress and SRH

The main aim of this study was to examine the relationship between parenting stress and SRH. Table 5.3 shows the models, which were built in a progressive manor, used to examine this relationship. In model 1, individual father characteristics that were significant at $p < 0.10$ were pooled. Significant bivariate level covariates included age and current smoker, with both covariates maintaining their significance when added to the model. In adjusted model 1, a significant relationship was found between parenting stress and poor/fair SRH with the odds of African American fathers reporting current depressive symptoms of 1.32 (95% CI: 1.01, 1.72) for every point increase in parenting stress score.

In model 2, contextual characteristics that were significant at $p < 0.10$ were pooled. Significant bivariate level covariates included number of children and multi-partner fertility. Both covariates lost significance when added to the model. In adjusted model 2, for every point increase in parenting stress score, the odds of African American fathers reporting poor/fair SRH were 1.30 (95% CI: 0.93, 1.80).

No child characteristics had a significant relationship with SRH at the bivariate level. Thus, a final model was constructed with covariates from both the individual and contextual level domains. Age and current smoker maintained their significance, suggesting domain specific influence, and both multi-partner fertility and number of children were non-significant suggesting less domain specific influence. As in the previous adjusted models, a non-significant relationship was found in adjusted model 3 in that for every point increase in parenting stress score, the odds of African American fathers reporting poor/fair SRH were 1.26 (95% CI: 0.96, 1.65).

5.4.4 Sensitivity Analysis

A sensitivity analysis was performed to examine the relationship between parenting stress and SRH when parenting stress was dichotomized into high versus low parenting stress levels (Appendix 1). Fathers who reported a score of 5 or greater for the continuous parenting stress measure were considered to have high parenting stress. This cut-off, which placed approximately a third of the fathers in the high stress category, was similar to the cut-off used by Crnic (2005), which designated mothers who scored in the highest 30% as ‘high stress’. At the bivariate level, no significant relationship was found between the odds of poor/fair SRH and high parenting stress when the cut-off for high parenting stress was set at this cut-off. As well, in the adjusted model 3, no significant relationship was found between high parenting stress and the odds of poor/fair SRH (OR 1.49; 95% CI: 0.32, 6.94).

Subsequent analyses were conducted assessing the relationship between poor/fair SRH and high parenting stress at various cut-off levels for high parenting stress (Appendix 5.1). There were statistically significant relationships between high parenting stress and poor/fair SRH when the cut-offs for high parenting stress were set at 9 and 10. In the adjusted full model with the high parenting stress cut-off of 10, a statistically significant relationship was found with the

odds of African American fathers with high parenting stress reporting poor/fair SRH of 20.83 (95% CI: 3.29, 131.67) as compared to fathers with low parenting stress. In the adjusted full model with the high parenting stress cut-off of 9, a statistically significant relationship was also found with the odds of African American fathers with high parenting stress reporting poor/fair SRH resting at 10.84 (95% CI: 2.63, 44.70) as compared to fathers with low parenting stress. However, for both cut-offs, the numbers of fathers who fell into the high parenting stress category were small, 38 and 69 respectively, which likely resulted in the large confidence intervals observed.

5.5 DISCUSSION

The purpose of this study was to address the lack of research on the relationship between parenting stress and SRH in African American fathers. This study explored the influence of common factors on SRH, as found in previous studies (Lindstrom, 2009; Froom, 2004; Kaleta, 2008; Westin, 2006), in tandem with specific factors, such as incarceration, unemployment, and relationship status, which may be more commonly encountered by African American men (BJS, 2014; BLS, 2016; McLanahan, 2010). This study used data from the Fragile Families and Child Wellbeing Study to obtain information from and about African American fathers. Overall findings from this study did not find a significant relationship between parenting stress and SRH. Implications of this study's findings provide insight into the multiple associates of poor SRH for African American fathers and support future exploration of additional pathways to address health and social disparities through consideration of distal associates as they related to SRH. A discussion of the study's findings as it compares to the broader body of related research and to future implications is given below.

Relationship between Parenting Stress and Poor/Fair SRH

Overall, findings from this study are both in contrast with and similar to findings seen in previous research. While the current findings are contrary to Schytt (2011), who found a positive association between parental stress and poor SRH, parental stress in that study was assessed as perceived stress related to the upcoming pregnancy and not current stress related to being a parent. In addition, findings from the current study are opposite those observed by Lantz (2005), with differences in sample population characteristics and parenting stress measurements possibly accounting for diversity in study findings. While Lantz (2005) assessed for current parental stress, almost half of their primarily white, non-institutionalized sample was over the age of 45 and parental stress was assessed chiefly through current satisfaction with parenting and child outcomes. In comparison, fathers in the current study were younger with over half of them currently or previously incarcerated. While some studies, which have examined incarcerated populations specifically, have found similar rates between okay and poor perceived health (Wallace, 2016), others have found that incarceration both reduced (Curtis, 2011) and increased (Kim, 2015) reports of poor health.

As mentioned, different measures of parenting stress or SRH could account for differences in study findings. As such, when findings from the current study were compared to findings from a study that used the same parenting stress and SRH measures, similar findings were found. Like Hernandez (2012), no direct relationship was found between parenting stress and SRH, among their sample of racially diverse urban fathers, when parenting stress was assessed as a continuous measure. Furthermore, no relationship was found between parenting stress and SRH when high parenting stress was designated at the upper third of respondents as done by (Crnic, 2005). However, in sensitivity analyses, our study found a significant relationship when fathers perceived their parenting stress significantly higher than what the

average father would report. While some parenting stress is universal for all parents (Deater-Decker, 1998), the finding of a relationship at higher levels of parenting stress gives slight support for the implication that parenting stress is associated with African American fathers' health when it reaches a certain threshold. However, due to the small number of fathers who fell in the extremely high parenting stress category, caution is warranted with interpretation and use of this finding.

Strengths and Limitations

While no significant relationship between parenting stress and SRH was found, this study holds several strengths. First, this study contains results from a large sample of African American men who represent an understudied population of resident and nonresident urban fathers. Previous studies that have looked at the relationship between parenting stress and SRH among fathers have intertwined African American fathers with fathers from other racial groups. This limits the ability to both observe for heterogeneity of parenting stress and SRH reports among African American fathers specifically and to identify and evaluate unique influencing factors.

A second strength of this study is the use of African American fathers' self-reports, including their perceptions of parenting stress and SRH. As SRH assessments consider both an individual's context and culture (Jylha, 2009), using information obtained directly from fathers ensures more convincing answers to our study questions about fathers' perspectives (Marsiglio, 2000) of the internal and external influences on their health.

In addition to the identified strengths, the study also contained several limitations, including a high attrition rate. Of the 2407 fathers identified as African American in the baseline study, 75% completed the baseline interview and 64% completed the 5-year interview. This

attrition rate was higher than for the overall sample at the 5-year follow-up, which was 70% (Bendheim-Thoman, 2008). The use of weights helped to account for this limitation.

A second limitation is that the current study used a cross sectional design to examine the relationship between parenting stress and SRH. This restricted the study from assessing for changes in parenting stress and assessments of SRH across the first five years of parenthood. Despite the fact that single assessments of SRH have been predictive of future mortality (Tamayo-Fonseca, 2013), single assessments ignore health trajectories that have been identified with repeat measures (Ayyagari, 2012) and future health status changes that can affect SRH reports (Bopp, 2012).

A third limitation for this study concerns the selected variables used in examining the relationship between parenting stress and SRH. There is the possibility that other factors should be included in the framework that would have allowed for a more detailed examination of the parenting stress-SRH relationship. For instance, subjective social status (Thompson, 2014), low social and economic capital (Ahnquist, 2012), neighborhood characteristics (Porrtina, 2007), and discrimination (Cuevas, 2013; Earnshaw, 2016) have been associated with lower reports of SRH.

Summary

Parenting stress is a unique type of stress related to the demands of parenting and manifests when the perceived demands outweigh a parents ability to meet those demands (Cooper, 2009). As scripted by Abidin, parenting stress is a series of appraisals of the harm and benefit associated with the demands of parenting and an impetus to call upon available resources to meet those demands. While parenting stress is common to parents (Eronen, 2007), a father's appraisal of and ability to draw upon those resources affects his parenting behavior, as in the original model's outcome, and his holistic measure of health (Singh-Manoux, 2006), as in the

current study's outcome. Thus, it is feasible that for fathers with lower measures of parenting stress, they are still able to draw upon the resources needed to meet their parenting demands and to not have those demands adversely impact their health appraisal. However, for fathers who perceive parenting stress as high, they may have surpassed the threshold of their personal appraisal of being able to cope with the demands of parenting and thus, those demands negatively bear upon their health appraisal. Additional research with larger samples of African American fathers is needed to further explore this supposition.

Implications and Recommendations

The foremost public health implication of this study underscores the importance of increasing the voice of African American fathers in both the parent-child literature and the general health literature. While research has propagated in the area of fatherhood's impact on men's health (Eggebeen, 2001; Knoester, 2006; Cooksey, 1998; Astone, 2014; Hernandez, 2012, Zeng, 2016; Simons, 2012; O'Flaherty, 2016; Eisenberg, 2011), less work has been done in looking at the effects of fathering's and parenting's impact on the health of African American men specifically (Murphy, 2012; Caldwell, 2013). The current study found that 13% of fathers rated their health as poor or fair. African American men who rate their health as poor/fair may be less inclined to engage in preventive health practices or self-care practices that promote health (Idler, 1997), which can have a direct impact on their lives as men and a direct and indirect impact on their roles as fathers.

Findings from the sensitivity analyses prompt the recommendation for additional research. While the current study found a significant relationship between parenting stress and poor/fair SRH when fathers perceived their parenting stress at the upper extreme, the small number of fathers who fell in the high parenting stress category and the large confidence

intervals obtained, supports the need for future studies with larger sample sizes to better explore this relationship.

Conclusion

Fascination with SRH as a measure of health lies in how the measure intertwines the multiple aspects of an individual's physical and psychological states, which represent modifiable and non-modifiable components residing at various ecological levels. African American men are leading in several areas of adverse health and social outcomes (CDC, 2013; CDC, 2016; BLS, 2016). As SRH has been recognized as a reliable measure of current general health standing and future health status and health behaviors (Wu, 2013; Engstrom, 1999; Mitchell, 2013), identification of influencing factors of SRH has been warranted, particularly as it relates to African American fathers. This study attempted to look at one potential associate, parenting stress. Although no significant relationship was found between parenting stress and SRH under the current model, additional work is needed to explore how other models representing the parenting stress-SRH relationship, as well as other influences on SRH for fathers, is warranted. The goal, in end, is to address the factors that lead to adverse subjective health reports, which can flag adverse health and behavior outcomes, which ultimately, can compromise African American fathers' ability to fulfill their roles as men, partners, and fathers.

TABLE 5.1- Descriptive Statistics of African American Fathers in Year 5 of the Fragile Families Study (n= 965)

Variable	Percent or Mean \pm SE
Age (%)	
<26 years	17.8
27-33 years	31.1
> 34 years	51.1
Education (%)	
Less than High School	23.7
High School or equivalent	48.7
Some College or more	27.6
Smoker (%)	46.2
Alcohol Use (%)	20.2
Drug Use (%)	12.5
Relationship status (%)	
Married	36.0
Romantic	20.2
Divorced/separated	5.6
Friends	28.4
No relationship	9.9
Relationship quality (1-5)	3.6 \pm 0.1
Working (%)	75.9
Previous or current incarceration (%)	52.3
Number of children (1-10)	2.9 \pm 0.1
Multi-partner fertility (%)	34.2
Father involvement (0-7)	3.7 \pm 0.1
Co-parenting (0-12)	10.2 \pm 0.2
Perceived Support (0-4)	3.2 \pm 0.1
Male child (%)	54.9
Child temperament (0-12)	6.4 \pm 0.3
Parenting Stress (0-12)	4.4 \pm 0.3
Poor/Fair SRH (%)	13.0

Note: Weighted values

TABLE 5.2- Unadjusted Bivariate Association between SRH and Covariates among African American Fathers in Year 5 of the Fragile Families Study (n=965)

Variable	Poor/Fair SRH	Good/Excellent SRH	P-value
Age (%)			0.012
< 26 years	16.3	18.1	
27-33 years	7.0	34.7	
> 34 years	76.7	47.2	
Education (%)			0.261
Less than High School	29.0	22.9	
High School or equivalent	63.2	46.6	
Some College or more	7.8	30.5	
Smoker (%)	74.5	42.0	0.024
Alcohol Use (%)	22.2	19.9	0.840
Drug Use (%)	16.8	11.9	0.517
Relationship status (%)			0.386
Married	52.1	33.6	
Romantic	9.7	21.8	
Divorced/separated	2.2	6.1	
Friends	22.3	29.3	
No relationship	13.8	9.3	
Relationship quality (1-5)	3.2 ± 0.4	3.7 ± 0.1	0.245
Working (%)	68.4	77.0	0.516
Previous/current incarceration (%)	33.1	55.2	0.135
Number of children (0-10)	3.7 ± 0.4	2.7 ± 0.1	0.047
Multi-partner fertility (%)	65.2	29.5	0.014
Father involvement (0-7 days)	3.4 ± 0.2	3.7 ± 0.1	0.263
Co-parenting (0-12)	10.0 ± 0.6	10.3 ± 0.2	0.629
Perceived Support (0-4)	3.3 ± 0.3	3.2 ± 0.1	0.845
Male child (%)	45.2	56.4	0.513
Child temperament (0-12)	6.0 ± 0.7	6.4 ± 0.4	0.601
Mom's age	31.2 ± 4.1	24.4 ± 0.4	0.108
Parenting Stress	6.6 ± 1.7	4.0 ± 0.2	0.130

Note: Weighted values

TABLE 5.3- Logistic Regression Models of the Effects of Parenting Stress on Poor/Fair SRH among African American Fathers in Year 5 of the Fragile Families Study (n=965)

	Model 1: Individual Characteristics		Model 2: Contextual Characteristics		Model 3: Individual & Contextual Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI
Parenting Stress	1.32	(1.01, 1.72)	1.30	(0.93, 1.80)	1.26	(0.96, 1.65)
Age						
< 26 years	4.74	(1.37, 16.34)			8.46	(2.02, 35.52)
27-33 years						
> 34 years	8.69	(3.52, 21.50)			5.93	(2.62, 13.43)
Smoker	3.22	(1.06, 9.84)			3.30	(1.08, 10.15)
Number of children			1.29	(0.93, 1.80)	1.30	(0.92, 1.83)
Multi-partner fertility			2.92	(0.82, 10.45)	2.96	(0.80, 11.02)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values; Adjusted models

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CHAPTER 6: EXAMINING THE MODERATING EFFECTS OF CO-PARENTING QUALITY ON PARENTING STRESS AND DEPRESSIVE SYMPTOMS AND ON PARENTING STRESS AND SELF-RATED HEALTH AMONG AFRICAN AMERICAN FATHERS

6.1 ABSTRACT

Positive co-parenting has been linked to parenting outcomes such as parental competence, father involvement, and subjective wellbeing. To date, while minimal work has been dedicated to examining co-parenting's affects on the psychological well being of African American fathers and absent in examining co-parenting's affect on the subjective health status of African American fathers, research is also lacking in examining the modifying effects co-parenting quality may have on those relationships. Using the Parenting Stress Model and a sample of 965 African American fathers from the Fragile Families and Child Wellbeing Study, logistic regression models were used to examine the modifying effects of co-parenting quality on the relationships between parenting stress and depressive symptoms and between parenting stress and Self Rated Health. Current depressive symptoms were measured using questions from the Composite International Diagnostic Interview-Short Form (CIDI-SF), SRH was assessed as either poor/fair or good/very good/excellent, co-parenting quality was measured using 6 items to assess the father's perception of trust, respect, and support from and communication with the mother, and parenting stress was assessed using four aggravation in parenting questions.

Results showed that co-parenting quality had neither moderating effects on the relationship between parenting stress and depressive symptoms (OR: 0.99; 95% CI: 0.90, 1.09) nor moderating effects on the relationship between parenting stress and SRH (OR: 1.05; 95% CI: 0.97, 1.13). One of the implications of these findings support further examination of other dimensions of co-parenting to determine if and how co-parenting works alongside other factors to influence father outcomes.

6.2 INTRODUCTION

Co-parenting

Co-parenting refers to the supportive alliance between adults raising children and the ways parents work together in their roles as parents (McHale, 1997; Feinberg, 2002). According to Feinberg (2002), there are four components of a co-parenting model which includes support versus undermining in the parental role, differences on childrearing values and issues, division of parental labor, which includes duties, tasks, and responsibilities, and management of family interactions. Co-parenting involves both overt actions, which are performed openly in the presence of other family members, and covert actions, which occur behind the scenes and are representative of feelings, actions, and cognitions that can support or undermine the co-parent's effectiveness in their role (McHale, 1997; Lamela, 2010). Wider views of co-parenting encompass multiple representations of the co-parent dyad in addition to married or divorced couple and include never married couples or any two people caring for a child (Van Egeren, 2004a; Lamela, 2010).

While the roots of co-parenting research has stemmed from divorced and married parents (VanEgeren, 2004b; Tissot, 2016; Price-Robertson, 2015; Durtschi, 2017; Fagan, 2014; Schoppe-Sullivan, 2016; Bonach, 2005; Feinberg, 2008; Konold, 2001; McHale, 1997), more recent research has expanded to look at co-parenting in adolescents (Varga, 2017), unmarried couples (Jamison, 2017), single African American mothers (Jones, 2007), and married and unmarried urban fathers (Isacco, 2010). The need to examine co-parenting within different contexts, that include diverse family structures, is essential to address the point that unmarried parents are likely to experience co-parenting differently (Jamison, 2017). For example, results from a study by Waller (2012) suggested that cooperative co-parenting might be more challenging for unmarried parents who separated after the birth or had never established couple status. According to

McLanahan (2010), over 60% of non-marital relationships in fragile family populations dissolve within the first five years after a child's birth, with African American couples more likely than White couples to undergo this transition. In addition, this rate increased to 73% if the African American couple were not living together at the time of the child's birth. In sum, while the concept of co-parenting is universal, in that it encompasses the alliance between any two adults raising children, the context in which co-parenting occurs, specifically among African American fathers in fragile families, supports examination of how particular contexts contribute to a universal concept.

6.2.1 Predictors of Co-parenting

According to Feinberg (2003), the co-parenting model follows an ecological framework with co-parenting influenced by individual, familiar, and extra-familial/contextual characteristics and is further shaped by the larger social and cultural context. Individual characteristics, such as parental beliefs, personality adjustment, depression, education, and value systems (Feinberg, 2002; Stright, 2003; Lamela, 2010), along with extra-familial/contextual characteristics, such as social support, environmental and economic stress, marriage quality prior to birth, father-child engagement, and satisfaction with financial child support arrangements (Feinberg, 2003; VanEgeren, 2004a; Fagan, 2012; Feinberg, 2002; Bonach, 2005), have been identified as contributors to the co-parenting experience. In addition, child characteristics, such as child temperament (VanEgeren, 2004b; Feinberg, 2003), have also been identified as contributors.

Bronte-Tinkew (2010a) found that among never-married, nonresident fathers, education, income, incarceration, relationship status, number of children, and visitation frequency had influences on co-parenting supportiveness. For resident fathers, income, child temperament, partner parenting stress, relationship quality, and depression have been identified as associates with co-parenting support (Bronte-Tinkew, 2010b). Along with employment and housing

(Jamison, 2017), relationship context, including the introduction of new partners and changes in family structure (Dush, 2011; McGee, 2012), and satisfaction with financial support (Bonach, 2005) have been found to influence the quality of co-parenting. In another study that looked at co-parenting in non-resident fathers, Fagan (2016) found that fathers both identified relatives and other adults in their co-parenting network, in addition to the focal child's mother, as well as reported higher parenting efficacy when more cooperative co-parenting relatives were reported. In sum, the concept of co-parenting is thought to follow an ecological framework. There are diverse factors at each level that have the potential to work together in unique combinations to influence fathers' co-parenting experiences.

6.2.2 Significance of Co-parenting

The study of co-parenting is significant in that the co-parenting relationship has been linked to child outcomes (Feinberg, 2002; Feinberg, 2007; Umemura, 2015; Cabrera, 2012), including child inhibition (Belsky, 1996) and child psychological adjustment (Teubert, 2010). In addition, positive co-parenting has been linked to parenting outcomes such as parental competence (Floyd, 1991), father involvement (Carston, 2008; McLanahan, 2010; Waller, 2012), and future relationship quality (Durtzchi, 2017). Co-parenting has been noted to be a central feature in the development of most adults (Vanegeren, 2004b) and can affect parents, including fathers, subjective wellbeing (Hoard, 2004). In sum, co-parenting does not just affect the present state of children and their caregivers but has the potential to affect both the child's and parent's future development and interactions.

6.2.3 Co-Parenting and Psychological Wellbeing

The influence of co-parenting on a father's psychological wellbeing has been demonstrated concerning depression and anxiety with co-parenting conflict identified as a life stressor that contributes to paternal depressive symptoms (Hoard, 2004). This finding is similar

to that found in a racially and relationship diverse sample of urban fathers, which found that co-parenting support decreased a father's probability of experiencing major depression (Hernandez, 2012). In contrast, when examining nonresident African American fathers specifically, Caldwell (2013) found that better co-parenting was not associated with less paternal depressive symptoms. In another study that looked at the relationship between co-parenting and depressive symptoms, Tissot (2017) found that lower co-parenting conflict was associated with higher depressive symptoms among fathers in a small sample of cohabitating and/or married couples.

Bi-directionality has been demonstrated in the relationship between depression and co-parenting. Bronte-Tinkew (2007) found depressive symptoms to be negatively associated with co-parenting supportiveness in a study of resident fathers and similar results were found in another group of cohabitating couples, in which fathers who reported mild or serious psychological distress were more likely to report lower quality co-parenting relationships (Price-Robertson, 2015). Finally, Isacco (2010) found that among both married and unmarried fathers, those who had increased depressive and anxiety symptoms perceived less co-parenting support. In sum, varying aspects of co-parenting have been examined, including support, conflict, and quality, as it relates to depressive symptoms. Along with the different aspects examined, mixed results have been found between co-parenting and depressive symptoms with a bi-directional relationship observed.

6.2.4 Co-Parenting and Self-Rated Health

In contrast to quantity of work that has looked at the relationship between co-parenting and psychological health, minimal research has been conducted in looking at the relationship between co-parenting and physical health. While previous studies have looked at the association between co-parenting and quality of life (Cohen, 2014) and the association between relationship quality and physical health (McShall, 2015), no studies have been identified that have looked

specifically at the relationship between co-parenting and physical or subjective health. In sum, while previous research has identified that co-parenting can have influences beyond those on psychological health, studies are lacking in looking at co-parenting influence on subjective health, particularly for African American fathers.

6.2.5 Co-parenting and Parenting Stress

Although it has been recognized that stressors in an individual's environment can influence the co-parenting experience (Feinberg, 2002), less attention has been given to specifically examining the relationship between co-parenting and parental stress. In a large longitudinal study of co-residential, primarily married couples, fathers' perceptions of co-parenting were associated with parenting stress measures (Fagan, 2014). In a smaller sample of dual-earner couples, fathers who perceived greater supportive co-parenting reported less parenting stress during their first year postpartum (Schoppe-Sullivan, 2016). In sum, observed research has identified a direct relationship between parenting stress and co-parenting.

6.2.6 Co-parenting as a Moderator

Feinberg (2003) identified co-parenting as a potential mediating factor to understand how parent characteristics work through a family system to affect child outcomes. Co-parenting has been viewed as a risk mechanism linking risk factors, which include individual, family, and extra-familial factors such as depression, relationship quality or stress, with child or parenting outcomes, which include child exhibiting behaviors or parenting behaviors. For instance, co-parenting has been explored as a potential mediator between relationship quality, the risk, and father involvement, the parenting outcome (Varga, 2017) and between psychological well-being, the risk, and father involvement, the parenting outcome (Coates, 2014). Likewise, Feinberg (2003) looked at co-parenting as a potentially moderating or buffering factor between individual, family, and extra-familial risk factors and overall family outcomes. In seminal work, Frank

(1991) identified the quality of parenting alliance as a moderator between child illness, the risk, and parenting stress, the parenting outcome, among fathers of preschoolers. Although not examined with fathers, Chen (2018) found that co-parenting moderated the relationship between parenting stress, the risk, and maternal warmth, the parenting outcome. In sum, co-parenting has been theoretically identified and empirically examined as a moderating factor between risk factors and parent outcomes.

6.2.7 Summary of Co-parenting in Fathers

The study of co-parenting has expanded from divorced and married couples to the never-married and single parent. With the percent of non-marital births increasing and the high chance of relationship dissolution within the first five years after a child's birth (McLanahan, 2010), research surrounding the concept of co-parenting among uncoupled parents has increased. While it has been recognized that unmarried couples who go through union dissolution experience co-parenting differently than married couples who undergo dissolution (Jamison, 2017), and research has begun to look at co-parenting in other family forms (Varga, 2017; Jamison, 2017; Jones, 2007), minimal work has been dedicated to examining how the experience of co-parenting affects the psychological wellbeing of African American fathers (Caldwell, 2013), who may have a higher chance of relationship dissolution and thus face a different co-parenting experience. In addition, while the literature is both lacking in exploring the contribution co-parenting quality makes to subjective health status among fathers, and only beginning to explore the contribution co-parenting quality make to parenting stress (Fagan, 2014; Schoppe-Sullivan, 2016), it has yet to tap either of these phenomena in African American fathers nor explore how co-parenting may serve as a potential moderator between the relationship between parenting stress, an individual risk factor, and African American fathers' psychological and subjective wellbeing, as an outcome.

The current study will address these gaps through the following aims: 1) Examine if co-parenting quality moderates the relationship between parenting stress and depressive symptoms among African American fathers and 2) Examine if co-parenting quality moderates the relationship between parenting stress and SRH among African American fathers.

6.3 METHODS

6.3.1 Theoretical Orientation

Abidin and Burke developed The Parenting Stress Model as a guide for the construction of a Parenting Stress Index (PSI), a tool designed to empirically evaluate the pathways suggested to contribute to dysfunctional parenting and child outcomes, with stress as the central construct (Abidin, 1990; Abidin, 1992). The Parenting Stress Model suggests that parenting behavior is influenced by multiple sociological, environmental, behavioral, and developmental factors (Abidin, 1992). Parental stress is denoted as function of three domains- parent characteristics, child characteristics, and demographic or situational characteristics, such as work, environment, marital relationship, daily hassles, and life events (Abidin, 1992).

The Parenting Stress Model is deemed suitable to address the study's focus on parenting stress in African American fathers as this framework has commonly been used to look at parenting stress in other populations (Golfenshtein, 2016; Ponnet, 2013; Kim, 2015; Oddi, 2013). In addition, while the Parenting Stress Model was created to demonstrate the suggested pathways that contribute to dysfunctional parenting and child outcomes, this study will adjust the model to demonstrate the suggested pathways that co-parenting may serve as a moderator between parenting stress and depressive symptoms (parent outcome) and between parenting stress and SRH (parent outcome) in African American fathers.

As indicated in the study's conceptual framework, the first domain contains individual father characteristics that have been suggested to contribute to parenting stress and have been

found to be associated with depressive symptoms or SRH. These characteristics include age, education, substance use, impulsivity, and depressive symptoms history. The second domain consists of contextual characteristics and includes employment, income, incarceration history, relationship status, relationship quality, number of children, multi-partner fertility, father involvement, co-parenting, and social support (Figure 6.1).

Finally in the conceptual framework, the third domain representing child characteristics is presented. With the child viewed as one of three elements that contribute to parenting stress, both child temperament and child gender are evaluated as covariates.

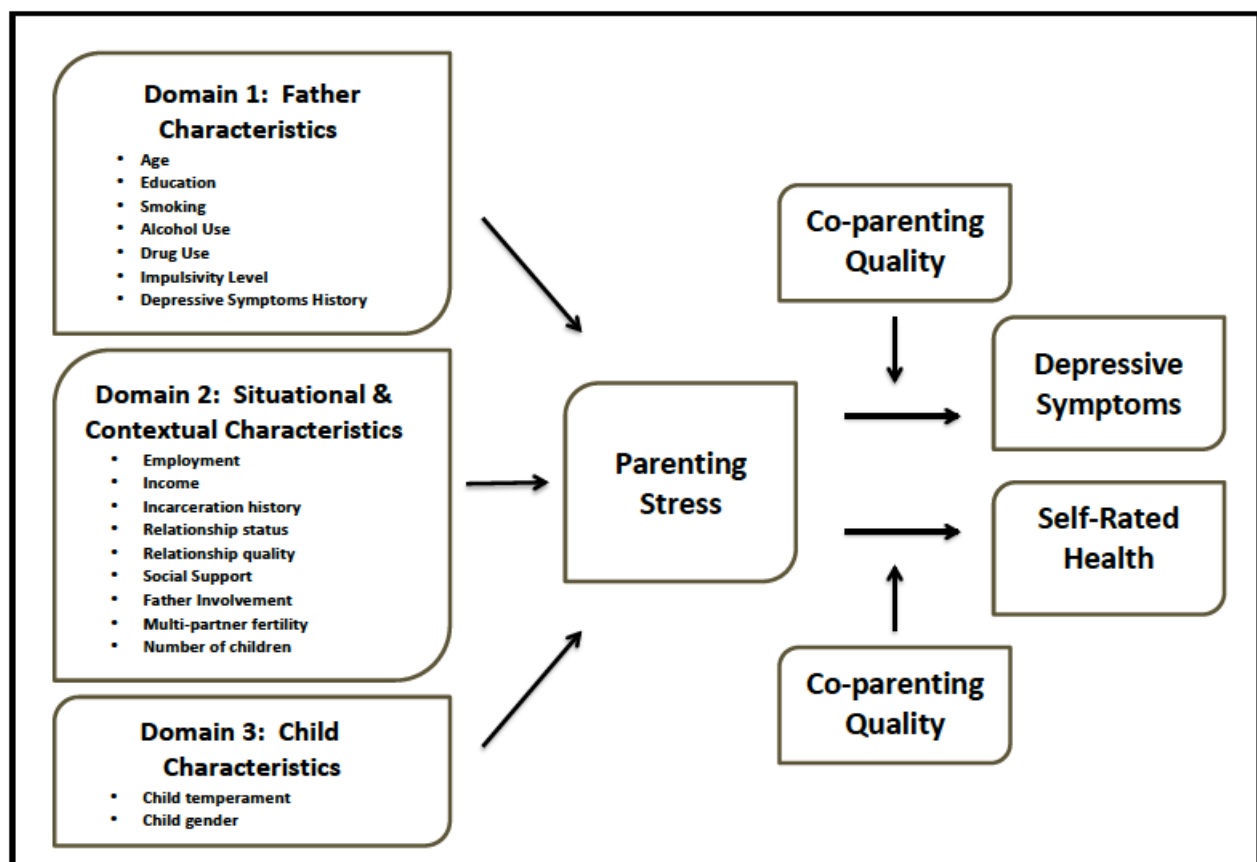


Figure 6.1 Moderating Effects of Co-Parenting Quality on the Relationship between Parenting Stress and Depressive Symptoms and between Parenting Stress and Self-Rated Health Among African American Fathers

6.3.2 Study Sample

Information from and about African American fathers was obtained using data from the Fragile Families and Child Wellbeing Study (hereafter Fragile Families; Fragile Families, 2016). Fragile Families is a longitudinal study that has followed a cohort of mostly unwed new parents and their children identified as “fragile families” because of the multiple risk factors associated with non-marital childbearing, a higher risk of poverty, and the susceptibility for relationship instability and dissolution. The purpose of Fragile Families was to examine the conditions and capabilities of new unwed parents and the well being of their children. Data were collected on approximately 4700 births, 3600 non-marital and 1100 marital births, in 75 hospitals in 20 cities across the United States beginning in 1998 with the last collection completed in 2014, at the 15-year follow-up mark. Data collection used a 3-stage sampling design. First, a stratified random sample of all US cities with a population greater than 200,000 was conducted, followed by a sampling of hospitals within those selected cities, then lastly by a sampling of births within those hospitals. Seventy-seven US cities with populations of 200,000 or more were rated and grouped according to the areas of welfare generosity, the strength of the child support system, and the strength of the local labor market. Among the selected cities, hospitals were chosen from among those hospitals that had the highest percent of non-marital births. Within each hospital, random samples of both married and unmarried births were conducted until preset quotas were met with the married sample to serve as a control group. Replicate weights are used in place of stratum and primary sampling unit variables to estimate sample variance. Both city level and national level weights are available for use in analysis.

Weighted, the data are representative of non-marital births in either each of the 20 cities or representative of non-marital births in US cities with populations over 200,000 (RWJ, 2014; McLanahan, 2003; Reichman, 2001; Bendheim-Thoman, 2008).

Fathers were considered eligible for the study if the mother of his baby had completed a baseline interview. Eligible mothers were initially interviewed after their child's birth while the mother was still in the hospital. At baseline, fathers were interviewed in person when they visited the mother in the hospital or by telephone outside of the hospital. The mothers reported information on fathers who could not be contacted. Follow-up structured interviews were conducted separately with both parents in-person or by telephone when their children reached their first birthday and by telephone at the third, fifth, ninth and fifteenth birthdays (Reichman, 2001; RWJ, 2014; Bendheim-Thoman, 2008).

Seventy-eight percent of all eligible fathers completed a baseline interview. Of the full sample, 2407 fathers were identified as African American at baseline. Of the 2407 African American fathers, 75% completed the baseline interview and 66%, 67%, and 64% completed the 1, 3, and 5-year interviews, respectively (Bendheim-Thoman, 2008). The current study uses data from the fathers' 5-year interview. Of the 1541 African American fathers who completed the 5-year interview, 965 participated in the national level survey and are included in the current study.

6.3.3 Measures

Dependent Variables

Depressive Symptoms

The first dependent variable of interest for the current study was depressive symptoms. Depressive symptoms are measured using questions from the Composite International Diagnostic Interview-Short Form (CIDI-SF), a standardized instrument for the assessment of mental disorders with questions consistent with the Diagnostic and Statistical Manual of Mental Disorders- Fourth Edition (Kessler et al., 1998; APA, 1994). Responses generated from the Short Form assess the probability that the fathers would be diagnosed with major depression if given the full CIDI assessment (Fragile Families, Scales Documentation, 2008). Initially, fathers are asked the following stem questions: “During the past twelve months, has there ever been a time when you felt sad, blue, or depressed for two or more weeks in a row?” “During that time, did the feelings of being sad, blue, or depressed usually last...all day long, most of the day, about half of the day, or less than half the day” and “During those two weeks, did you feel this way...every day, almost every day, or less often?” If the father answered yes to those questions, he would be asked seven additional symptom questions. The sum of positive responses to each of the seven questions along with the original stem questions would yield a total score of 0-8. Fathers who score higher than three were considered to have greater than a 50% probability of being a case for major depression. The current study used the dichotomous scoring method proposed by Fragile Families as one of the two alternatives to use with the CIDI-SF, to identify probably versus non-probable cases of

major depression based on whether scores were greater than or less than three (Fragile Families, Scales Documentation, 2008).

Self-Rated Health

The second dependent variable of interest for the current study was Self-Rated Health (SRH), which was measured with the single question “In general, how is your health?” with responses falling on a five point scale of “Excellent” “Very good” “good” “fair” or “poor”, with higher scores representing better health. The current study assessed SRH as a dichotomized value, poor/fair and good/very good/excellent, which was consistent with reporting styles used in previous studies (Chiu, 2016; Janzen, 2006).

Independent Variable

Parenting Stress

Parenting Stress was the main predictive variable and was conceptualized through aggravation in parenting questions developed by Child Trends to measure the amount of parenting stress brought on by changes in employment, income, or other factors in the parent’s life (Fragile Families, Scales Documentation, 2008). The original 9-item scale contains items from Aibdin’s (1995) Parent Stress Inventory. Fragile Families utilized a modified version of the full scale which consisted of the four following statements “Being a parent is harder than I thought it would be”, “I feel trapped by my responsibilities as a parent”, “I find that taking care of my child (ren) is much more work than pleasure”, and “I often feel tired, worn out, or exhausted from raising a family”. Each statement was rated using a 4-point Likert-scale ranging from Strongly Agree” to “Strongly Disagree” with a final score noted as an average score of the four statements, ranging from 1-4 with higher scores representative of a greater level

of parenting stress. Parenting stress was assessed as a continuous variable with possible scores ranging from 0-12. Previous studies using year 5 Fragile Families data have reported $\alpha = 0.58$ for fathers (Halpern-Meekin, 2016).

Moderating Variable

Co-parenting

Questions to assess co-parenting support were developed by the Fragile Families researchers (Isacco, 2010). Co-parenting was measured using 6 items to assess the father's perception of trust, respect, and support from and communication with the mother in raising their child. The following statements were rated as "Always True" "Sometimes True" "Rarely True" or "Never True": "When (Mother) is with (Child), she acts like the mother you want for your child", "You can trust (Mother) to take good care of (Child)", "She respects the schedules and rules you make for (Child)", "She supports you in the way you want to raise (Child)", "You and (Mother) talk about problems that come up with raising (Child)", and "You can count on (Mother) for help when you need someone to look after (Child) for a few hours". Dush (2011) reported $\alpha = 0.77$ for fathers at year five when the never true and rarely true replies were collapsed into the same group to create 3 response categories thus creating a continuous variable with scores ranging from 0-12.

Covariates

The following covariates were selected based on their associations with depressive symptoms or SRH in previous literature.

Age. Lee (Y., 2012) found that younger fathers had a higher risk for depressive symptoms than older fathers when their child was aged 3 although not at child age 5. In

addition, increasing age has been predictive of lower SRH (Froom, 2004; Ayyagari, 2012). In this study, paternal age was assessed as a categorical variable, grouping fathers as less than 26, 27-33, and older than 34 years of age. This age group was similar to that used by other Fragile Families researchers (Castillo, 2012).

Education. Level of education has been associated with the probability of depression (Lee, 2016). Moreover, the level of education has been associated with SRH (Nery Guimaraes, 2012; Lee, 2016), with less than a high school education being predictive of lower reports of SRH (Weinrich, 2001). Education was assessed by the father's report of highest education level at study baseline using an ordinal scale: Less than high school diploma, high school diploma or equivalent degree, some college or trade, and 4 year college degree or higher. In this study, fathers with a 4 year college degree or higher were combined with fathers with some college or trade to create a 3 categorical variable for education level, as less than 5% of the sample had a four-year college degree or more. This grouping has also been used by other studies using Fragile Families data (Bronte-Tinkew, 2010; Carlson, 2008; Dush, 2011).

Smoking Status. The risk of depression has been found to be positively associated with smoking (Chen, 2017; Buzi, 2010; Lyons, 2008) and depression prevalence has been found to occur more often in smokers than non-smokers (Unsal, 2014). Smoking status has also been shown to be predictive of poorer SRH (Froom, 2004; Hammig, 2014; Nery Guimaraes, 2012) and contrarily, associated with higher reports of SRH (Goldman, 2004). Smoking status was assessed with the following question: "In the past month, did you smoke cigarettes?" This variable was assessed as a binary variable whether fathers respond "Yes" or "No".

Alcohol Use. Alcohol use has been recorded as a symptom associated with depression among men (Cavanagh, 2017; Brownhill, 2005). Coulson (2014) found that both non-use and three or more drinks a day was associated with a greater likelihood of depression. Concerning SRH, mixed results have been found with its association with alcohol use. While Taylor did not find any association, DuMont (2016) found that lower alcohol consumption increased the likelihood of poorer reports of SRH. Alcohol use was assessed with the question “What is the largest number of drinks you had in any single day during the past twelve months” with possible responses of none, between one and three, four to ten, eleven to twenty, or more than twenty drinks. Fathers were considered alcohol users if they consumed more than 4 drinks in a single day in the past 12 months (Fragile Families, Scales Documentation, 2008).

Drug Use. Drug misuse has been documented as a symptom associated with depression (Fingeret, 2005), specifically among men (Cavanagh, 2017; Brownhill, 2005). Regular use of illicit drugs has also been reported to increase the likelihood of poorer reports of SRH (DuMont, 2016). For drug use, fathers were asked to report on the use of drugs on their own (without a prescription, in larger amounts than prescribed, or for a longer period than prescribed) in the past twelve months. Fathers were considered drug users if they reported any drug use in the past 12 months (Fragile Families, Scales Documentation, 2008).

Impulsivity. Previous research has shown a relationship between poor impulse control and depression among men (Cavanagh, 2017; Winkler, 2005). Impulsivity level was measured using the two questions taken from Dickman’s 1990 Impulsivity scale pertaining to dysfunctional impulsivity (Fragile Families, Scales Documentation, 2008),

“I often get into trouble because I don’t think before I act” and “I often say and do things without considering the consequences”. Responses from a 4-point Likert scale were reverse coded and summed to form a continuous variable ranging from 0-6, with higher scores representative of lower levels of self-control ($\alpha = 0.84$, Turney, 2012).

Depressive Symptoms History. A history of depression (Lee, Y., 2012) has been associated with current depressive symptoms. History of depressive symptoms was assessed as a dichotomous variable, using the same method used to assess current depressive symptoms, using fathers’ responses from year 1 and year 3 surveys.

Employment. Employment status has been identified as a predictor of depressive symptoms (Anderson, 2005; Bronte-Tinkew, 2007). Additionally, employment status has been identified as a predictor of SRH (Huijts, 2015; Kaleta, 2008). Employment status was assessed from the following questions: “Last week, did you do any regular work for pay” with “Yes” and “No” as response options.

Income. Depression symptoms have been found to be associated with income (Hong, 2011; Dismuke, 2010), with employment status and financial strain influencing that relationship (Zimmerman, 2005; Fukuda, 2012). Likewise, income has been associated with SRH (Janzen, 2006; Nery Guimaraes, 2012), with better reports of SRH increasing with higher income (Nyak, 2016). Income was assessed with the following question: “In the past twelve months, what was the total income of your household from all sources before taxes and other deductions? Please include your own income and the income of everyone living with you.” Income was assessed as a continuous variable.

Incarceration history. Current and history of recent incarceration has been associated with a higher risk of depressive symptoms (Anderson, 2005; Bronte-Tinkew, 2007). In

addition, current and history of recent incarceration has been associated with both lower and higher odds of poorer SRH (Curtis, 2011; Kim, 2015). A constructed dichotomous variable was created by Fragile Families based on both mothers' and fathers' reports to measure whether the father had ever been in jail with possible responses of not in jail/never in jail or in jail/ever in jail (Bendheim-Thoman, 2008).

Relationship status. Numerous studies have found a relationship between father's relationship status and reports of SRH (Janzen, 2006; Chiu, 2016; Westin, 2006; Meadows, 2009). Relationship status was assessed as a nominal variable with the following question: "What is your relationship with (Mother) now?" with the following response options "Married", "Romantically involved", "Separated", "Divorced", "Just friends", and "Not in any kind of relationship".

Relationship quality. Relationship quality has been shown to be negatively associated with depression in fathers (Paulson, 2010) and found to serve as a mediator in the association between relationship status and mental health (Leach, 2013). Moreover, several studies have noted relationships between relationship quality and perceived SRH (Bookwala, 2005; Markey, 2007; Umberson, 2006). Relationship quality was assessed with the question "In general, would you say that your relationship with her (Mother) is excellent, very good, good, fair, or poor?" Responses were reverse coded to 1-5 so that higher scores represented higher quality relationships (Castillo, 2012).

Social Support. Low social support has been reported to be associated with greater depressive symptoms (Lee, Y., 2012; Anderson, 2005; Wee, 2011). For health reports, Gerich (2014) and Nayak (2016) found that adults with larger support networks or good social support reported better health status. In contrast, Singh-Manoux (2006) did not

find that social support was associated with men's report of SRH. Perceived social support was measured with the following 4 items: "If you needed help during the next year, could you count on someone to loan you \$200?" "Is there someone you could count on to provide you with a place to live?" "Is there someone you could count on to help you with emergency child care?" "Is there someone you could count on to co-sign for a bank loan with you for \$1,000?" Response options are no (0) and yes (1). Values from the four items were summed to create a scale ranging from 0, indicating a low level of perceived social support, to 4, indicating a high level of perceived support. Fagan (2011) reported $\alpha = 0.77$ among a group of adolescent and adult fathers.

Father involvement. Previous research has shown that higher father involvement and contact was related to lower levels of depression and better reports of general health among fathers (Bokker, 2006; Chan, 2017). The level of father involvement was assessed by asking fathers how many days in a week they 1) sung songs or nursery rhymes, 2) read stories, 3) told stories, 4) played inside with toys, 5) told child that he appreciated something they did, 5) played outside in the yard, park, or a playground, 6) took the child on an outing, and 7) watched TV or a video together. Each response held a value from 0, for none, to 7, for seven days a week, resulting in possible summative score ranging from 0 to 56 with higher scores indicative of more involvement (Waller, 2012). Total scores were transformed to create a score of 0-7 to provide an average number of days per week. Isacco (2010) reported $\alpha = 0.96$ for married fathers and $\alpha = 0.95$ for non-married fathers at year 1 and Fagan (2011) reported $\alpha = 0.91$ at year 3.

Multi-partner fertility. Multi-partner fertility was assessed from the following question: “Does father have any children by someone other than mother?” This covariate is assessed as a binary variable whether fathers responded “Yes” or “No”.

Number of children. Bourne (2009) reported that the number of children was a determinant of good health reports among men however, in a review by Bartlett (2004), mixed results were found on the influence number of children had on men’s health. Number of children was assessed as a continuous variable.

Child temperament. Inconsistent findings have been reported on the influence of child temperament with paternal depression. While Hanington (2010) did not find any effects of child temperament on paternal depression, Nath (2016) found an association in that fathers with higher levels of depressive symptoms had children with more difficult temperaments as compared to fathers who reported less symptoms. Child temperament was assessed at child age one by asking fathers to rate on a 1-5 scale how alike (not at all to very much) the following three statements were to their child’s behavior: He/She often fusses and cries, He/She gets upset easily, and He/She reacts strongly when upset. Sum scores were recoded to reflect a range of 0-12 with higher scores representing a more difficult temperament ($\alpha = 0.61$, Cardoso, 2010).

Child gender. Previous studies have yielded mixed results on the association between child gender and parental depression. Researchers have either found that mothers of male children reported more depressive symptoms (Lagerberg, 2012), had greater odds of postpartum depression (Da Silva Moraes, 2006), or found that child gender was protective against prenatal depression but not postpartum depression (Fiala, 2017). Cankorur (2017) however did not find that gender preference was associated with either

maternal antenatal or postpartum depression. In addition, male children were found to reduce several dimensions of mothers' report of quality of life, although not for the dimension of general health (De Tychey, 2007), findings in contrast to Kimura (2018), which found lower reports of SRH among mothers who had female children. However, among a group of older men, child gender did not have a significant impact on reports of SRH (Rahman, 2004). Child gender was assessed as a nominal variable of male or female.

Maternal depressive symptoms. Literature reviews by Goodman (2004) and Bradley (2011) found maternal depression to be a strong predictor of paternal depression during the postpartum period. Maternal depression was assessed by asking fathers the question “Since (CHILD) was born, has there been a time when (MOTHER) felt sad, blue or depressed, or lost interest in most things that usually give her pleasure? This covariate is assessed as a binary variable whether fathers respond “Yes” or “No”.

6.3.4 Analysis

Descriptive analysis was performed on the independent and dependent variables and on the covariates. For the moderating variable, co-parenting quality, the independent variable parenting stress, and the covariates of impulsivity, relationship quality, father involvement, social support, number of children, and child temperament, the mean and range of scores are reported. For the dependent dichotomous variables depressive symptoms and SRH, along with the covariates smoking status, alcohol use, drug use, employment status, incarceration history, multi-partner fertility, and (male) child gender, the percent distribution of each variable is reported. The percent

distribution for African American fathers falling into each category for the covariates of age, education, and relationship status, is also described.

Next in the analysis, we examined the unadjusted bivariate associations between current depressive symptoms and each covariate using either t-tests or chi-squared tests. This was also done to examine the unadjusted bivariate associations between SRH report and each covariate. In the last step of our analysis, we examined the moderating effect of co-parenting quality on the relationship between parenting stress and the dependent outcomes separately by regressing both depressive symptoms and SRH on parenting stress and the covariates that were statistically significant at $p < 0.10$ with the outcomes at the bivariate level.

There were few variables that had no missing data. Of the variables that contained missing data, the percent ranged from less than 1% to 16% with one variable missing 29% of the data. Mean values were imputed for missing data (Allison, 2010) to preserve maximum sample size for analysis. All estimates and analyses used national weights to make the data representative of non-marital births in US cities with populations over 200,000 (Bendheim-Thoman, 2008). All analyses were conducted using STATA 14.0. The level of statistical significance was set at $p < 0.05$.

6.4 RESULTS

6.4.1 Descriptive Statistics

Table 6.1 presents the weighted demographic characteristics of the sample. Fathers' age ranged from 20-53 and 17.8% of the fathers were below the age of 26 and 51.1% of the fathers were older than 34. For education, 48.7% of the sample had a high school diploma or equivalent and 27.6% had at least some college education. For

substance use, 46.2% of fathers were current smokers, 20.2% were consumers of alcohol, and 12.5% participated in some form of drug use. The average impulsivity score was 1.6 on a scale of 0-6. Seventeen percent of the fathers reported depressive symptoms in either survey year 1 or year 3 and 9.7% reported depressive symptoms in survey year 5.

Thirty-six percent of the sample was married, 20.2% were in a romantic relationship, 28.4% were friends, and 9.9% had a no relationship status with the focal child's mother. The mean relationship quality rating was 3.6 indicating that on average, fathers reported that the quality of their relationship with the mother was good to very good. Seventy-five percent of the fathers were working at the time of the survey and 52% were currently or previously incarcerated.

Fathers had an average of 2.9 children and thirty-four percent of fathers had multi-partner fertility, or children by more than one partner. Fathers reported being involved with their child an average of 3.7 days per week and conveyed a level of co-parenting quality of 10.2 on a scale of 0-12. On average, fathers reported their level of perceived support at 3.2 out of possible score of 4. Male was the focal child's gender for 54.9% of the fathers and fathers reported a mean child temperament score of 6.4 on a scale of 0-12.

Forty percent of the fathers reported that the child's mother felt sad, blue or depressed, or lost interest in most things that usually gave her pleasure as some time since the birth of their child. Thirteen percent of fathers reported their health as poor or fair. Finally, the mean parenting stress score among fathers was 4.4 on a scale of 0-12.

6.4.2 Bivariate Association between Depressive Symptoms and Domain

Characteristics

Individual Characteristics

Table 6.2 shows the unadjusted bivariate relationship between the presence of current depressive symptoms and the covariates. While there was no significant relationship between depressive symptoms and age ($p = 0.055$), the proportion of fathers with current depressive symptoms were similar in both the youngest age group and the oldest age group (37.8% and 35.6% respectively) as compared to fathers without depressive symptoms, where the proportion of fathers in the oldest age group was more than three times the proportion in the youngest age group (52.7% vs. 15.7%). There was no significant relationship between depressive symptoms and education ($p = 0.345$) however, fathers with depressive symptoms had less education overall than fathers without symptoms. A higher percent of fathers with depressive symptoms had less than a high school education as compared to fathers without symptoms, 39.0% vs. 22.1%, and a lower percent of fathers with depressive symptoms had either a high school education or at least some college education, 40.6% vs. 49.6% and 20.4% vs. 28.4% respectively, as compared to fathers without symptoms.

No significant relationship was found between either smoking status and depressive symptoms or between alcohol use and depressive symptoms ($p = 0.139$ and $p = 0.628$ respectively) even though a higher percent of African American fathers who reported depressive symptoms, as compared to fathers who did not report depressive symptoms, reported smoking and use of alcohol, 63.5% vs. 44.4% and 24.4% vs. 19.7% respectively. In contrast, a statistically significant relationship was found between use

of drugs and current depressive symptoms ($p < 0.000$), with 46.2% of fathers with current symptoms reporting drug use as compared to 8.9% of fathers without current symptoms.

There was also a statistically significant relationship between impulsivity level and depressive symptoms, with fathers who reported depressive symptoms having an average score of 2.2 as compared to 1.5 for fathers without symptoms ($p = 0.035$). A history of depressive symptoms was significantly associated with current depressive symptoms ($p = 0.011$). Over 40% of fathers with current depressive symptoms also reported previous symptoms in either survey year 1 or year 3 as compared to 14.7% of fathers without current depressive symptoms.

Contextual Characteristics

No significant relationship was found between depressive symptoms and relationship status ($p = 0.196$). A higher proportion of fathers with current depressive symptoms however were in either a romantic relationship or in a friend status relationship, 33.1% and 35.6% respectively, as compared to fathers without depressive symptoms, where a higher proportion of these fathers were married (38.8%). In contrast, a statistically significant relationship was found between relationship quality and fathers' report of depressive symptoms, with fathers with depressive symptoms reporting lower scores as compared to those without symptoms, 3.0 vs. 3.7 respectively ($p = 0.037$).

A significant association was also found between employment and depressive symptoms ($p = 0.012$). Among the fathers who reported current depressive symptoms, only 53.4% of them were employed as compared to 78.3% of fathers who did not report

current symptoms. Current or previous incarceration did not show a significant relationship with depressive symptoms, with 75.9% of fathers who reported depressive symptoms having a connection with incarceration as compared to 49.8% of fathers who did not report symptoms ($p = 0.075$).

There were no significant relationships between depressive symptoms and either number of children or multi-partner fertility ($p = 0.302$ and $p = 0.305$, respectively). While fathers with depressive symptoms had a greater number of children, 3.4 vs. 2.8 as compared to fathers without symptoms, a smaller percentage had multi-partner fertility, 21.2% vs. 35.6%.

There were no significant relationships between depressive symptoms and either father involvement or co-parenting quality scores ($p = 0.235$ and $p = 0.107$ respectively) even though fathers with depressive symptoms reported lower father involvement and co-parenting quality scores as compared to fathers without current symptoms (3.3 vs. 3.7 and 9.4 vs. 10.3 respectively). Similarly, no significant relationship was found between depressive symptoms and perceived support, with similar scores reported for fathers with and without depressive symptoms, 3.0 vs. 3.2 ($p = 0.336$).

Child Characteristics

Child gender was significantly associated with depressive symptoms, with male children more common among fathers with depressive symptoms ($p = 0.004$). However, no significant relationship was found for reports of child temperament ($p = 0.295$), with fathers with depressive symptoms rating their child's temperament at 7.0 as compared to 6.3 for fathers without symptoms.

Maternal Characteristics

Maternal age was not associated with depressive symptoms. The mean maternal age for fathers with symptoms was at 23.7 vs. 25.5 for fathers without symptoms ($p=0.439$). Although not statistically significant ($p=0.238$), fathers with current symptoms were more likely to have reported that the child's mother had felt sad, blue or depressed, or lost interest in most things that usually gave her pleasure as some time since the birth of their child as compared to fathers without symptoms (54.1% vs. 39.1% respectively).

Finally, upon examining the direct relationship between depressive symptoms and parenting stress, no significant relationship was found ($p=0.154$) even though fathers with current symptoms had a higher mean parenting stress score than fathers without depressive symptoms (5.3 vs. 4.3 respectively).

Bivariate Association between SRH and Domain Characteristics

Individual Characteristics

Table 6.3 shows the unadjusted bivariate relationship between fathers who reported either poor/fair or good/excellent SRH and the covariates. There was a statistically significant relationship between SRH reports and age ($p=0.012$). Over 76% of the fathers who reported poor/fair SRH were older than 34 years, as compared to 47.2% of the fathers who reported good/excellent SRH. There was no statistically significant relationship between SRH and overall education level ($p=0.261$), although a smaller proportion of fathers who reported poor/fair SRH had at least some college education as compared to fathers who reported good/excellent SRH (7.8% vs. 30.5% respectively).

For substance use, there was a statistically significant relationship between fathers who reported poor/fair SRH as compared fathers who reported good/excellent SRH and current smoking ($p= 0.024$). However, no significant relationship was found between SRH reports and either alcohol use or drug use ($p= 0.840$ and $p= 0.517$, respectively).

Contextual Characteristics

The relationship between SRH and relationship status was not significant ($p= 0.386$) even though a higher percentage of fathers who reported poor/fair SRH were married as compared to fathers who reported good/excellent SRH, 52.1% vs. 33.6%. In addition, a greater percentage of fathers who reported good/excellent SRH as compared to fathers who reported poor/fair SRH were in a romantic relationship, 21.8% vs. 9.7%. Similarly, no statistically significant relationship was found between SRH and relationship quality, with similar scores between fathers who reported poor/fair SRH as compared to fathers who reported good/excellent SRH, 3.2 vs. 3.7 ($p= 0.245$).

There was no significant relationship between SRH and employment ($p= 0.516$) even though more fathers who reported good/excellent SRH were employed as compared to fathers who reported poor/fair SRH, 77.0% vs. 68.4% respectively. Also, there was no significant relationship between the two groups of fathers and incarceration history ($p= 0.135$), despite a higher percent of fathers with good/excellent SRH reporting current or previous incarceration as compared to fathers with poor/fair SRH, 55.2% vs. 33.1%, respectively.

There were statistically significant relationships between SRH and number of children and multi-partner fertility. Fathers who reported poor/fair SRH had a larger

number of children and a higher percentage with multi-partner fertility, 3.7 vs. 2.7 ($p=0.047$) and 65.2% and 29.5% ($p=0.014$), respectively.

In contrast, no relationship was found between SRH and father involvement. While fathers who reported poor/fair SRH reported fewer days of engagement in activities during the week as compared to fathers who reported good/excellent SRH, 3.4 vs. 3.7 days respectively, there was no significant difference between the two groups ($p=0.263$). Similarly, no significant relationship was found between SRH and co-parenting quality ($p=0.629$), with fathers who reported poor/fair SRH having an average score of 10.0 as compared to 10.3 for fathers who reported good/excellent SRH. No significant relationship was identified between SRH and perceived support with similar scores between fathers who reported poor/fair SRH and those who reported good/excellent SRH, 3.3 vs. 3.2 ($p=0.845$).

Child Characteristics

There were no significant relationships between SRH and child gender or SRH and child temperament ($p=0.513$ and $p=0.601$, respectively). While a male child was less common for fathers who reported poor/fair SRH as compared to fathers who reported good/excellent SRH (45.2% vs. 56.4%), the difference was not significant. Furthermore, similar child temperament scores were reported between fathers who reported poor/fair SRH and those who reported good/excellent SRH, 6.0 vs. 6.4.

Finally, upon examining the direct relationship between SRH and parenting stress, no significant relationship was found ($p=0.130$) even though fathers who reported poor/fair SRH had higher mean parenting stress scores as compared to fathers who reported good/excellent SRH (6.6 vs. 4.0).

6.4.3 Moderating Effects of Co-parenting Quality in Multivariable Models

Table 6.4 shows the results of the moderating effects of co-parenting quality on the relationship between parenting stress and depressive symptoms in adjusted models that considered the influence of covariates that were significant with depressive symptoms at the bivariate level. These covariates included age, drug use, impulsivity level, previous depressive symptom history, relationship quality, employment status, incarceration history, and child gender. The co-parenting quality variable was added to the model, along with a variable indicating its interaction with parenting stress, to address the study's primary aim. In the adjusted model, for every point increase in parenting stress score, the odds of African American fathers reporting current depressive symptoms were 1.25 (95% CI: 0.48, 3.25), with no significant moderating effect of co-parenting quality with parenting stress observed (OR: 0.99; 95% CI: 0.90, 1.09).

Table 6.4 also shows the moderating effects of co-parenting quality in models that consider the influence of covariates that were significant with SRH at the bivariate level. Covariates that were significant with the outcome of poor/fair SRH included age, smoking status, number of children, and multi-partner fertility. These covariates, along with the co-parenting quality variable and a variable indicating co-parenting quality's interaction with parenting stress, were added to create a model to address the study's primary aim. In this adjusted model, for every point increase in parenting stress score, the odds of African American fathers reporting poor/fair SRH were 0.80 (95% CI: 0.38, 1.72), with no significant moderating effect of co-parenting quality with parenting stress observed (OR: 1.05; 95% CI: 0.97, 1.13).

6.5 DISCUSSION

Co-parenting is considered to represent the influence of factors occurring at varying levels of the ecological model and to be shaped by the context in which co-parenting occurs (Feinberg, 2003). While previous studies have begun to examine co-parenting beyond the divorced and coupled populations (VanEgeren, 2004; Tissot, 2016; Price-Robertson, 2015; Durtschi, 2017; Fagan, 2014; Schoppe-Sullivan, 2016; Bonach, 2005; Feinberg, 2008; Konold, 2001; McHale, 1997) to minority and single parent groups (Varga, 2017; Jamison, 2017; Jones, 2007; Isacco, 2010), who may enter co-parenting under different sets of contexts, research has been minimal in examining whether co-parenting works in junction with other factors, such as parenting stress, to influence psychological or physical health outcomes. This study used data from the Fragile Families and Child Wellbeing Study to obtain information from and about African American fathers to examine whether co-parenting quality moderated the relationship between parenting stress and the two health outcomes of depressive symptoms and SRH. Overall findings revealed that co-parenting quality had neither moderating effects on the relationship between parenting stress and depressive symptoms nor on the relationship between parenting stress and SRH. A discussion of the study's findings as it fits into the broader base of similar research and as it relates to future implications is provided.

Moderating Effect of Co-parenting Quality

Feinberg (2003) identified co-parenting as a potentially moderating factor between individual, family, and extra-familial/contextual risk factors and overall family outcomes. To date, no known research has been conducted on the moderating effects of

co-parenting on parenting stress and depressive symptoms or on parenting stress and SRH. In spite of this, a broader look at co-parenting as a moderator shows that our findings are both consistent with and in contrast to prior work that has look at co-parenting as a moderator in other parenting and familial areas. Findings from the current study are consistent with those reported by Camisasca (2014) who found that although parenting alliance was found to mediate the relationship between marital adjustment and parenting stress, it did not moderate the relationship. However, study comparison is limited due to differing measuring tools used to assess both parenting stress and co-parenting. The Parenting Alliance Measure, while related to co-parenting and has been proposed as one way to operationalize co-parenting, assesses the degree to which parents believe they have a sound parenting relationship with the child's other parent (Camisasca, 2014), and thus emphasize a different perspective of the parenting relationship.

In contrast to the current study, Frank (1991) found both a direct relationship between parenting alliance and depression as well as a moderating effect of parenting alliance between child illness and parenting stress among fathers. In the current study, no direct relationship was found between co-parenting quality and depressive symptoms or between co-parenting quality and SRH. One explanation for the difference in findings, in addition to the different measures used to assess moderation effects as well as depression, is that the current assessment of co-parenting, may not be the component of co-parenting that influences or adversely affects health. For instance, in the study by Hoard (2004), which looked at co-parenting conflict as compared to co-parenting support or quality, found conflict to be associated with depressive symptoms among fathers. As such, the antagonistic aspects of co-parenting may have more of an impact on or

association with other aspects wellbeing, such as SRH, as compared to the supportive aspects of co-parenting. In addition, even though parenting stress was a factor in the moderation models of the aforementioned studies, it served as an outcome of interest versus a predictor variable. Moreover, in the comparison studies, parents were identified as ‘families’ or were married or cohabitating (Frank, 1991; Camisasca, 2014) whereas in the current study, over 40% of the fathers were not in a married or romantic relationship with the mother. While previous studies have suggested that cooperative co-parenting may be more challenging for unmarried parents who separated after the birth or had never established couple status (Waller, 2012) and that unmarried parents may experience co-parenting differently (Jamison, 2017), the relationship and interaction between co-parenting and parenting stress may also look different from what it looks like among married or committed parents. As the concept of co-parenting considers multiple ecological level factors (Feinberg, 2003), co-parenting among African American fathers may reflect a more complex concept that considers facets the current measure does not capture. In the current study, co-parenting only taps one aspect of co-parenting, quality or support, without assessment of other dimensions, such as undermining (Van Egeren, 2004a) or gatekeeping (Schoppe-Sullivan, 2008), which can affect co-parenting quality. For instance, co-parenting quality has been found to be influenced by the presence of new partners, provision of informal support, and maternal encouragement and gatekeeping behaviors (Bronte-Tinkew, 2010a; Schoppe-Sullivan, 2008), features that may not be evident when assessing co-parenting quality as with the current measure. Furthermore, Caldwell (2013) demonstrated the influence of diverse ecological level factors on the co-parenting experience, in which better co-parenting was associated with more paternal

depressive symptoms, among a sample of nonresident African American fathers who held more masculinity ideologies.

The interaction between co-parenting quality and parenting stress may also be influenced by other factors not measured. For instance, other adults and family members have been recognized as co-parent participants in African American families (Jones, 2007; Gonzalez, 2014) and both stressors and support have been found to negatively and positively affect co-parenting reports (Riina, 2012). Future work is needed to both explore this potentially broader network of adults who may participate in childrearing and untangle inputs, such as added stress, support or conflict, they may add to African American fathers' co-parenting experience.

In another look at our findings as compared to other research, our findings are in contrast to the moderating effects of co-parenting as found when examining other types of stress and parenting outcomes. For instance, Mao (2017) found that co-parenting alliance moderated the relationship between financial stress and certain aspects of parenting quality. In addition to the different measure used to assess for co-parenting and the different predictor and outcome evaluated, other factors may contribute to the difference in the presence of co-parenting moderating effects. It is plausible that while a direct relationship between parenting stress and depressive symptoms or SRH have been found in prior research (Bronte-Tinkew, 2007; Lee, Y., 2012; Hernandez, 2012; Lantz, 2005), there may be unidentified agents that buffer the effect of parenting stress on depressive symptoms and SRH, or other pathways through which parenting stress travels to exert its influence or to shape the expressiveness of parenting stress on those outcomes for African American fathers. In the Parenting Stress Model, the relationship between

parenting stress and parenting behavior is proposed to be both direct as well as indirect, traveling or mediated through factors such as social support and competency skills to produce parenting behaviors (Abidin, 1992).

Strengths and Limitations

Although co-parenting quality was not found to moderate the relationships between parenting stress and the health outcomes of depressive symptoms or SRH, one of the strengths of this study is that it adds to the literature by being the first known study to examine these relationships in African American fathers. Prior research has demonstrated that each component, depressive symptoms, SRH, parenting stress, and co-parenting, can impact the wellbeing of fathers as individuals and the relationships to which they belong (Davis, 2008; Davidson, 2000; Ramchandani, 2011; Tamayo-Fonseca, 2013; Razzaque, 2014; Floyd, 1991; Durtschi, 2016; Baker, 2014). This study took the opportunity to examine how these components might work together to gain understanding of the influences and associations these specified health outcomes may have for African American fathers.

A second strength of this study is the novel look at the moderating effects of co-parenting quality among a new set of relationships. A large proportion of prior research on co-parenting quality has looked at its mediating effects (Delvecchio, 2015; Fagan, 2014; Shai, 2017; Cabrera, 2012). This study adds to the literature by not only looking at the moderating effects of co-parenting, but also looking at it within a relationship not previously examined. Examination of co-parenting quality as a moderator provides the ability to assess whether the relationship between parenting stress and the health outcomes vary across levels of perceived co-parenting quality.

While this study holds several strengths, it also holds some limitations. First, due to the cross-sectional nature of the study, co-parenting quality was assessed at only one time point. This negated the ability to both assess whether there were critical periods of co-parenting development earlier in the parenting experience that set a trajectory for current co-parenting reports as well as to assess prior negotiations of parenting expectations and roles (VanEgeren, 2004b). Change in relationship status is a critical period when expectations and negotiation changes are likely to occur and a large proportion of the fathers in the current study underwent relationship dissolution by year five. While co-parenting quality has been found to be responsive to relationship commitment and relationship quality prior to relationship dissolution, it is also affected by the amount of time passed since relationship dissolution (Goldberg, 2015; Dush, 2011) and family structure type (Fagan, 2011).

A second limitation is that co-parenting was assessed from a lens of a didactic parenting relationship, father with the mother. The assumption negates the role and influences of extended family networks, which involve other adults in the care and decision-making concerning the focal child, who often provide support in African American families (Jones, 2007).

Another limitation concerns the measurement of co-parenting quality as it compares to a broader assessment of co-parenting theory and research by McHale (2004). The co-parenting measure only assessed for quality in co-parenting and not conflict in co-parenting. While no significant association was found between co-parenting quality and depressive symptoms in the current study, both the presence and absence of co-parenting

conflict has been associated with depressive symptoms in other studies (Hoard, 2004; Tissot, 2017).

A final limitation to consider is that co-parenting is noted to be bi-directional, in which one partner's actions affect and are affected by the other partner's actions (VanEgeren, 2004a) and that the co-parental relationship influences and is influenced by the behavioral, emotional and representational styles of each parent in their role as co-parental partner. In the current study, only the father's perspective is assessed, without regard to how he affects or is affected by co-parenting practices and attitudes of other adults involved in co-parenting the focal child.

Summary

Implications and Recommendations

The Parenting Stress Model was used to examine the moderating effect of co-parenting quality on the relationship between parenting stress and depressive symptoms as well as between parenting stress and SRH among African American fathers. While no significant moderating effects were found for co-parenting quality, findings from the study hold multiple implications. While it has been suggested that parents who separate after the birth or never established couple status may find cooperative co-parenting more challenging (Waller, 2012), African American fathers in the current study, for which over 40% were not in a coupled relationship with the child's mother, perceived they were able to establish high quality co-parenting relationships despite the high non-coupled relationship rates and multi-partner fertility occurrences observed. One implication of this finding is that the lens, from which co-parenting quality is established, may be shaped by other factors, beyond relationship status, not assessed for in the current study,

which may emit a direct or indirect effect on African American fathers' health. This supposition supports further study of other dimensions of co-parenting to determine if and how co-parenting works alongside other factors to influence health outcomes for fathers.

In addition, as this is the first study known to examine the moderating role of co-parenting quality on the relationship between parenting stress and health outcomes specifically for African American fathers, future studies are needed to examine whether co-parenting serves as a mediator in the relationship between parenting stress and health outcomes for African American fathers. For instance, Shai (2017) found that the co-parenting alliance served as a mediator between parent mentalization (recognizing children as separate psychological entities) and parenting stress among mothers. As well, in a small sample of primarily African American adolescents, Varga (2017) found that co-parenting mediated the relationship between relationship quality and father involvement.

Conclusion

Previous literature has outlined the ecological framework under which co-parenting is organized while recognizing the contextual influences that shape co-parenting expression. This study examined how one dimension of co-parenting, quality, exerted influence on the relationship between parenting stress and depressive symptoms as well as between parenting stress and SRH among African American fathers. As men will continue to become fathers, continued research is needed to better understand the context specific attributes of the associated and moderated factors related to depressive

symptoms and SRH measures, outcomes that can have implications for both individual and intrapersonal well being.

TABLE 6.1- Descriptive Statistics of African American Fathers in Year 5 of the Fragile Families Study (n= 965)

Variable	Percent or Mean \pm SE
Age (%)	
<26 years	17.8
27-33 years	31.1
> 34 years	51.1
Education (%)	
Less than High School	23.7
High School or equivalent	48.7
Some College or more	27.6
Smoker (%)	46.2
Alcohol Use (%)	20.2
Drug Use (%)	12.5
Impulsivity Level (0-6)	1.6 \pm 0.1
History of depressive symptoms (%)	17.2
Current depressive symptoms (%)	9.7
Relationship status (%)	
Married	36.0
Romantic	20.2
Divorced/separated	5.6
Friends	28.4
No relationship	9.9
Relationship quality (1-5)	3.6 \pm 0.1
Working (%)	75.9
Previous or current incarceration (%)	52.3
Number of children (1-10)	2.9 \pm 0.1
Multi-partner fertility (%)	34.2
Father involvement (0-7)	3.7 \pm 0.1
Co-parenting (0-12)	10.2 \pm 0.2
Perceived Support (0-4)	3.2 \pm 0.1
Male child (%)	54.9
Child temperament (0-12)	6.4 \pm 0.3
Dad's view mom's depression (%)	40.6
Poor/Fair SRH (%)	13.0
Parenting Stress (0-12)	4.4 \pm 0.3

Note: Weighted values

TABLE 6.2- Unadjusted Bivariate Association between Presence of Current Depressive Symptoms and Covariates among African American Fathers in Year 5 of the Fragile Families Study (n=965)

Variable	Current Depressive Symptoms	No Current Depressive Symptoms	P-value
Age (%)			0.055
< 26 years	37.8	15.7	
27-33 years	26.6	31.6	
> 34 years	35.6	52.7	
Education (%)			0.345
Less than High School	39.0	22.1	
High School or equivalent	40.6	49.6	
Some College or more	20.4	28.4	
Smoker (%)	63.5	44.4	0.139
Alcohol Use (%)	24.4	19.7	0.628
Drug Use (%)	46.2	8.9	0.000
Impulsivity Level (0-6)	2.2 ± 0.3	1.5 ± 0.1	0.035
History of depressive symptoms (%)	40.6	14.7	0.011
Relationship status (%)			0.196
Married	10.3	38.8	
Romantic	33.1	18.8	
Divorced/separated	5.8	5.6	
Friends	35.6	27.6	
No relationship	15.3	9.3	
Relationship quality (1-5)	3.0 ± 0.3	3.7 ± 0.1	0.037
Working (%)	53.4	78.3	0.012
Previous/current incarceration (%)	75.9	49.8	0.075
Number of children (0-10)	3.4 ± 0.6	2.8 ± 0.1	0.302
Multi-partner fertility (%)	21.2	35.6	0.305
Father involvement (0-7 days)	3.3 ± 0.3	3.7 ± 0.1	0.235
Co-parenting (0-12)	9.4 ± 0.5	10.3 ± 0.2	0.107
Perceived Support (0-4)	3.0 ± 0.2	3.2 ± 0.1	0.336
Male child (%)	77.7	52.5	0.004
Child temperament (0-12)	7.0 ± 0.6	6.3 ± 0.4	0.295
Mom's age	23.7 ± 2.1	25.5 ± 0.7	0.439
Dad's view mom with depression (%)	54.1	39.1	0.238
Parenting Stress	5.3 ± 0.6	4.3 ± 0.4	0.154

Note: Weighted values; Mean ± Standard Error

TABLE 6.3- Unadjusted Bivariate Association between SRH and Covariates among African American Fathers in Year 5 of the Fragile Families Study (n=965)

Variable	Poor/Fair SRH	Good/Excellent SRH	P-value
Age (%)			0.012
< 26 years	16.3	18.1	
27-33 years	7.0	34.7	
> 34 years	76.7	47.2	
Education (%)			0.261
Less than High School	29.0	22.9	
High School or equivalent	63.2	46.6	
Some College or more	7.8	30.5	
Smoker (%)	74.5	42.0	0.024
Alcohol Use (%)	22.2	19.9	0.840
Drug Use (%)	16.8	11.9	0.517
Relationship status (%)			0.386
Married	52.1	33.6	
Romantic	9.7	21.8	
Divorced/separated	2.2	6.1	
Friends	22.3	29.3	
No relationship	13.8	9.3	
Relationship quality (1-5)	3.2 ± 0.4	3.7 ± 0.1	0.245
Working (%)	68.4	77.0	0.516
Previous/current incarceration (%)	33.1	55.2	0.135
Number of children (0-10)	3.7 ± 0.4	2.7 ± 0.1	0.047
Multi-partner fertility (%)	65.2	29.5	0.014
Father involvement (0-7 days)	3.4 ± 0.2	3.7 ± 0.1	0.263
Co-parenting (0-12)	10.0 ± 0.6	10.3 ± 0.2	0.629
Perceived Support (0-4)	3.3 ± 0.3	3.2 ± 0.1	0.845
Male child (%)	45.2	56.4	0.513
Child temperament (0-12)	6.0 ± 0.7	6.4 ± 0.4	0.601
Mom's age	31.2 ± 4.1	24.4 ± 0.4	0.108
Parenting Stress	6.6 ± 1.7	4.0 ± 0.2	0.130

Note weighted values

Table 6.4- Moderating Effects of Co-parenting Quality on the Odds of Current Depressive Symptoms and Poor/Fair Self-Rated Health for African American Fathers in Year 5 of the Fragile Families Study (n=965)

	OR	95% CI
Current Depressive Symptoms		
Parenting Stress	1.25	(0.48, 3.25)
Age		
< 26 years	1.69	(0.39, 7.36)
27-33 years	0.53	(0.13, 2.19)
> 34 years	1.00	
Drug use	6.22	(1.60, 24.19)
Impulsivity Level	0.98	(0.61, 1.56)
History of depressive symptoms	5.17	(1.93, 13.88)
Relationship quality	0.71	(0.44, 1.15)
Employment status	0.58	(0.13, 2.65)
Previous/current incarceration	2.05	(0.63, 6.73)
Male child	4.94	(1.57, 15.61)
Co-parenting Quality	1.04	(0.59, 1.81)
Parenting Stress x Co-parenting Quality	0.99	(0.90, 1.09)
Poor/Fair SRH		
Parenting Stress	0.80	(0.38, 1.72)
Age		
< 26 years	8.32	(1.86, 37.24)
27-33 years	1.00	
> 34 years	6.17	(2.69, 14.12)
Smoker	3.44	(1.03, 11.48)
Number of children	1.33	(0.95, 1.87)
Multi-partner fertility	2.78	(0.67, 11.60)
Co-parenting Quality	0.75	(0.56, 1.01)
Parenting Stress x Co-parenting Quality	1.05	(0.97, 1.13)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Adjusted, Weighted values

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CHAPTER 7: GENERAL DISCUSSION

7.1 CONCLUSION

The purpose of the current study was to address multiple gaps in the research literature concerning the relationship between parenting stress and health outcomes for African American fathers. The Parenting Stress model was used to examine how specific socio-demographic, interpersonal, and contextual predictors work to influence the relationship between parenting stress and depressive symptoms, the relationship between parenting stress and SRH, and the modifying effects of co-parenting quality on both of those relationships. Findings from the study revealed that the majority of African American fathers reported some degree of parenting stress, however overall findings did not show parenting stress was associated with the specified health outcomes for African American fathers under the current Parenting Stress Model.

In the study's first aim, the relationship between parenting stress and depressive symptoms was examined. Consistent with Abidin's Parenting Stress Model, variables from each of the three domains had a significant relationship with the outcome of depressive symptoms. These variables included age, drug use, impulsivity, previous depressive symptom history, relationship quality, employment, incarceration history, and male child gender. Logistic regression models were created to examine the odds of current depressive symptoms as a function of parenting stress and the significant bivariate level covariates. The study found that under the guidance of the Parenting Stress model, parenting stress was not significantly associated with current depressive symptoms for African American fathers.

For the study's second aim, the relationship between parenting stress and SRH was examined. Unlike the first aim, not all domains contributed significant variables to the final model; no variables from the child domain were significant. Logistic regression models were created to examine the odds of poor/fair SRH as a function of parenting stress and significant bivariate level covariates, which included age, smoking status, number of children, and multi-partner fertility. Overall findings from this study did not find a significant relationship between parenting stress and SRH.

In the third section of this paper, research aims three and four were examined. These aims expanded on aims one and two by examining whether co-parenting quality moderated the relationship between parenting stress and the health outcomes within the Parenting Stress model, which included the significant bivariate level covariates. Findings revealed that that co-parenting quality had neither moderating effects on the relationship between parenting stress and depressive symptoms nor moderating effects on the relationship between parenting stress and SRH.

7.2 STRENGTHS AND LIMITATIONS

While overall results from the study did not find significant findings, this study holds several strengths and adds multiple contributions to the field of public health. This study used data from the Fragile Families and Child Wellbeing study, which contains information from a large sample of African American men who represent an understudied population of resident and nonresident urban fathers. While research has propagated in the area of fatherhood's impact on men's health (Eggebeen, 2001; Knoester, 2006; Cooksey, 1998; Astone, 2014; Hernandez, 2012; Zeng, 2016; Simons, 2012; O'Flaherty, 2016; Eisenberg, 2011), less work has been done in looking at the

impact of fathering and parenting on the health of African American men specifically (Murphy, 2012; Caldwell, 2013). Relatedly, this study used African American fathers' self-reports of their perceptions of parenting stress, relationship quality, and co-parenting quality, rather than maternal reports to learn about father experiences.

An additional strength of this study was that it examined how parenting stress was associated with the health outcomes of African American fathers with preschool children. Previous studies on parenting stress in minority fathers have studied either how parenting stress affected father involvement, been conducted during the first three years of the child's life, or centered on married or residential fathers (Baker, 2014; Fagan, 2007; Bronte-Tinkew, 2010b). In studies that have considered parenting stress among fathers with older preschool children, fathers identified as African American and/or non-residential were not the focus (Skreden, 2012; Kim, 2015; Fagan, 2014). As a result, this study has increased not only the presence but also the voice of African American fathers in both the parent-child literature and the general health literature.

In addition to the identified strengths, the study contained several limitations, including a high attrition rate. Of the 2407 fathers identified as African American in the baseline study, 75% completed the baseline interview and 64% completed the 5-year interview. This attrition rate was higher than for the overall sample at the 5-year follow-up, which was 70% (Bendheim-Thoman, 2008). The use of weights helped to account for this limitation. Similarly, the main predictor variable parenting stress contained a high number of missing values. While the use of mean imputation increased our sample of fathers, this action reduced the measure's overall variance.

A second limitation to note is that while the current study examined parenting stress and health outcomes specifically among African American fathers, study findings should not be generalized to all African American fathers. Fathers included in the study were identified as part of a ‘fragile family’ and while looking at African American fathers specifically allowed for examination of heterogeneity among the African American fathers, greater heterogeneity is likely to exist when other diverse cultural and social factors, that might influence the parenting experience and its association with health, are considered.

A third limitation was that the current study used a cross-sectional design. This restricted the ability to assess for time ordering of events, causation, or changes in parenting stress, depressive symptoms, or relationship statuses. Change in relationship status is a critical period when expectations and negotiation changes are likely to occur and a large proportion of the fathers in the current study underwent relationship dissolution by year five.

A fourth limitation for this study concerns the selected variables used in examining the relationship between parenting stress and the health outcomes. There is the possibility that other factors should be included in the framework that would have allowed for a more detailed examination of the parenting stress-depressive symptom and the parenting stress-SRH relationships. For instance, coping styles and racial discrimination has been found to affect the report of depression (Bamishigbin, 2017) and subjective social status (Thompson, 2014), low social and economic capital (Ahnquist, 2012), neighborhood characteristics (Porrtina, 2007), and discrimination (Cuevas, 2013; Earnshaw, 2016) have been associated with lower reports of SRH however, most

of these measures were not available in the Fragile Families data set. In addition, the study examined the relationships between parenting stress and health outcomes through an approach that adapted the Parenting Stress model and selected variables that were significant at the domain level. Other model building approaches, such as step-wise selection, is an alternative approach and if were used in the current study, different results may have been obtained.

A final limitation surrounds the measure of parenting stress. This study uses four aggravation in parenting questions that were derive from a survey developed by Child Trends to measure the amount of parenting stress brought on by changes in employment, income, and other life factors. While several of the scale items come from Abidin's Parent Stress Inventory, the current study, as other studies using Fragile Family Data (Berryhill, 2016; Cooper, 2009; Durtschi, 2016), does not use the full Parenting Stress Index which was developed from the Parenting Stress Model.

7.3 PUBLIC HEALTH IMPLICATIONS

Findings from the current study hold multiple implications. The WHO has recognized depression as the largest contributor of disability worldwide (WHO, 2017). For African American men, depression is still stigmatized and mental health services remain underutilized (Ward, 2013a; Ward 2013b). Results from the current study show that the prevalence of depressive symptoms among African American fathers is above the 12-month prevalence rate of depressive disorders found in the general adult population (Kessler, 2003; Kessler, 2005), similar to rates of paternal depression found in other populations (Paulson, 2010; Cameron, 2016), but even higher when specific socio-demographic factors are considered. The implication of this finding supports the

need to implement depression screening for fathers of school aged children and implement and support programs that target associating factors, such as drug use and unemployment, which could potentially lessen the burden of depressive symptoms among African American fathers.

Alongside the recognition that additional research is needed, the sensitivity analysis performed within the current study found a significant association between parenting stress and poor/fair SRH when fathers reported high parenting stress. In addition, findings from the current study showed that 13% of the fathers rated their health as poor/fair. African American men who rate their health as poor/fair may be less inclined to engage in preventive health practices or self-care practices that promote health (Idler, 1997). Additional studies are needed to explore the relationship between high parenting stress and SRH reports. The information gained could support the field of Public Health in addressing one of contributors to negative reports of SRH, which may contribute to adverse health behaviors and health outcomes that make up the health disparities faced by African American men.

7.4 PRACTICE IMPLICATIONS

While survey weights were utilized to promote generalization of findings to a larger population, there are trade-offs. Survey weights removed statistically significant bivariate relationships found in the sample observed without weights. The use of weights potentially forfeited nuances found in the sample of fathers who responded and the implication of that information. While there were some differences between the fathers who were interviewed in year 5 as compared to those fathers who were not, such as interviewed fathers were significantly more likely to have seen their baby after birth

in the hospital and significantly more likely to be in a steady or on-again/off-again relationship at the time of their child's birth, than those fathers not interviewed, notation of those differences can be useful. For the group of fathers who remain connected and reachable, future practice could work to identify unique needs and direct interventions and services to specific groups of fathers. If one of the goals of research is to identify issues and develop solutions, researchers and practitioners could be remiss in assuming that programmatic interventions that target fathers who are reachable are the same as those for fathers who are not.

A second practice implication is that the subject of co-parenting needs to be highlighted among practitioners and educators. It has been identified that co-parenting is context dependent and concedes both short and long-term impacts on the child and father/parent (Feinberg, 2007; Umemura, 2015; Cabrera, 2012; Teubert, 2010; McLanahan, 2010; Waller, 2012; Floyd, 1991). In the current study over 40% of the couples were in a non-romantic relationship and 48% of them were not living together, two factors that both shape the context of co-parenting and may make co-parenting more challenging. Thus, practitioners and educators who work with fragile families are spurred to recognize the potential need to adjust the lens from which they view co-parenting in order to tailor interactions and interventions that meet the needs of specific co-parenting contexts. For instance, beginning co-parenting discussions and mediations during the antenatal, postpartum, or well-child visits for parents who have undergone relationship transitions or dissolutions, or may be at risk for dissolution, may decrease unprepared entry of parents into co-parenting and foster more constructive co-parenting impacts on child and father/parent outcomes.

7.5 RESEARCH RECOMMENDATIONS

Despite obtaining non-significant findings, implications of the information obtained from the study supports the call for additional research. Further research is needed to expand the assessment of parenting stress, particularly what factors contribute to it in African American fathers. The full Parenting Stress Index could be employed to ascertain which additional factors, if any, lie along the pathway that lead from parenting stress to depressive symptoms or from parenting stress to SRH in African American men. In the full Parenting Stress Index, the three domains, child characteristics, parent characteristics, and situational life stress, are evaluated both as separate entities as well as with a composite score (Abidin, 2012). Use of the full index would allow for a more in-depth examination of the multiple factors in each domain and their potential influence on health outcomes. Similarly, additional studies could explore what affiliation parenting hassles, which was found to be associated with psychological distress (Creasey, 1996), has with depressive symptoms for African American fathers. Daily hassles, life events, and the individual's environment are other factors in the contextual domain identified by Abidin (1992) suggested to contribute to parenting stress. Next, by maintaining use of the Parenting Stress Model, future research could examine what other paternal health outcomes or behaviors are impacted by the presence of parenting stress.

Similarly, other tools exist that measure more complete aspects of co-parenting (Konold, 2001). As noted, the current study assessed the quality component of co-parenting although it is recognized that co-parenting encompasses multiple components, involves both covert and overt actions, and is influenced by extra-dyad influences.

(McHale, 1997; Fagan, 2016). Future research could examine in greater detail the contextual nuances that shape the co-parenting experience of African American fathers.

Future research could address questions related to attrition. What can we learn about African American fathers who respond to surveys as compared to those who do not? And, are fathers who respond to surveys similar to fathers who would respond to other forms of outreach, including program outreach?

Finally, the last research recommendation surrounds SRH. Previous research has linked SRH reports to the use of health services and to health outcomes (Jylha, 2009; Farkas, 2010; Tamayo-Fonseca, 2013; Razzaque, 2014). Health statistics have highlighted that African American men are leading their racial counterparts in early mortality and chronic health conditions such as strokes, hypertension, diabetes, and overall cancer incidence (CDC, 2013; CDC, 2016). Future research that examines the predictive value of SRH for African American men could explore 1) how SRH reports are related to these health outcomes, and 2) how to tailor and target interventions to African American men who report lower levels of subjective health in efforts to decrease the occurrences of these health outcomes and the contributions they make to the health disparities observed.

7.6 NEXT STEPS

7.6.1 Policy

One of necessary next steps concerning support for increased depression screening and treatment for fathers is greater support in these areas for mothers. Currently, there are no US federal policies that require postpartum depression screening for mothers, and while the Center for Medicare and Medicaid Services permit coverage

of maternal depression screening and treatment referrals at well child visits, it is not required and remains at state level discretion (PSI, 2019; AAP, 2016). A second policy call, alongside addressing the shortage of mental health providers (SAMHSA, 2014), is to provide mental health providers and interventions that are tailored to reach and meet the needs of African American men to counter mental health stigma and mental health services underutilization (Ward, 2013a; Ward 2013b).

7.6.2 Practice

There is also a next step call to practitioners. Increased efforts and expanded outputs for program development and interventions targeting new fathers and parents on how to 1) handle parenting stress, 2) develop healthy co-parenting relationships, and 3) recognize the contributions co-parenting quality and parenting stress makes to African American men's physical and mental health outcomes are needed. Reframing interventions around parenting stress and co-parenting may also help to circumvent the stigma surrounding depression and mental health by creating a venue where mental health topics are talked about alongside other components of parenting.

7.7 CONCLUSION

This study brings to the forefront the need to take a look at the health of African American men in their childbearing years. Statistics on African American men have primarily centered on morbidity and mortality and adverse social rankings. This study attempted to take a broader look at African American men and how their experience as fathers impacts their own reports of health. This study showed that African American fathers, like other groups of parents, experience parenting stress, depressive symptoms, and lower reports of subjective health. However, the need to explore deeper and

understand better the context that surrounds and the factors that influence those experiences is what is needed to adequately address the parenting and health needs of African American fathers. In the absence of doing such, we may be left with the adverse contribution those unaddressed needs make to the wellbeing of their children and to the fathers themselves.

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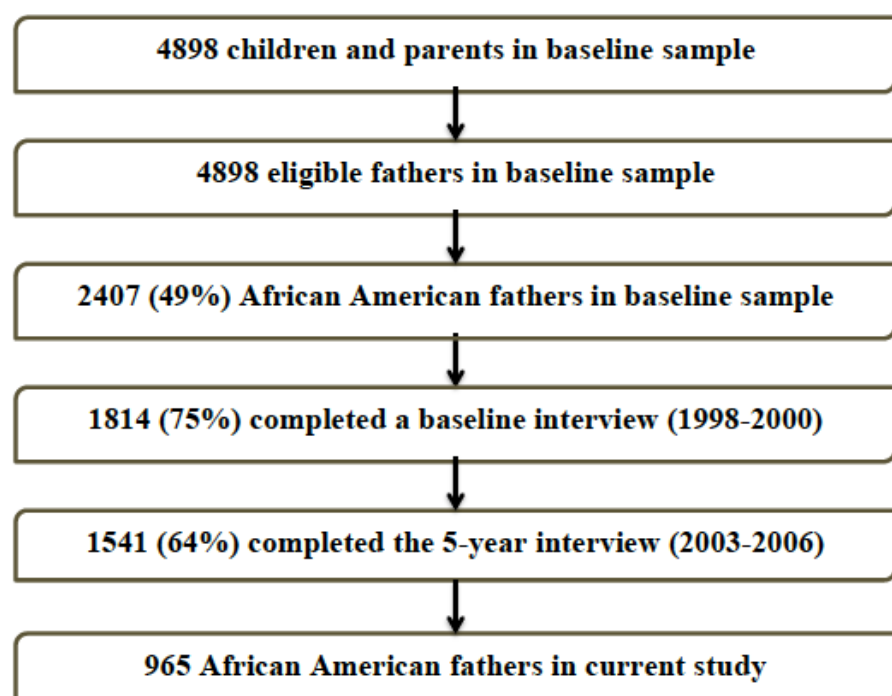
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APPENDIX A- Study sample



APPENDIX 4.1- Logistic Regression Models of the Effects of Parenting Stress on Depressive Symptoms among African American Fathers in Year 5 of the Fragile Families Study with Varying Cut-Offs for High Parenting Stress (n= 965)

	Model 1: Individual Characteristics		Model 2: Contextual Characteristics		Model 3: Individual & Contextual Characteristics		Model 4: Individual, Contextual & Child Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
High Parenting Stress- Score >= 11	1.28	(0.09, 18.87)	1.29	(0.15, 10.87)	1.89	(0.19, 18.42)	4.17	(0.44, 39.72)
Age								
<26 years	2.56	(0.56, 11.78)			1.89	(0.42, 8.57)	1.77	(0.42, 7.50)
27-33 years	0.85	(0.22, 3.25)			0.65	(0.15, 2.72)	0.53	(0.14, 1.98)
> 34 years	1.00				1.00		1.00	
Drug use	7.48	(2.86, 19.51)			6.26	(1.69, 23.14)	7.13	(1.79, 28.34)
Impulsivity	1.15	(0.82, 1.60)			1.02	(0.69, 1.52)	1.00	(0.68, 1.46)
History of depressive symptoms	4.26	(1.19, 15.26)			3.80	(0.97, 14.82)	5.22	(1.96, 13.86)
Relationship quality			0.65	(0.43, 0.99)	0.75	(0.46, 1.23)	0.69	(0.41, 1.16)
Employment status			0.37	(0.13, 1.04)	0.55	(0.12, 2.44)	0.60	(0.13, 2.78)
Previous/current incarceration			2.74	(0.73, 10.30)	2.33	(0.58, 9.35)	2.05	(0.53, 7.98)
Male child							5.10	(1.68, 15.45)
High Parenting Stress- Score >= 10	1.05	(0.01, 105.00)	2.04	(0.14, 30.61)	1.75	(0.02, 139.25)	3.62	(0.06, 235.75)
Age								
<26 years	2.52	(0.5, 12.80)			1.78	(0.33, 9.65)	1.60	(0.33, 7.68)
27-33 years	0.84	(0.24, 2.98)			0.64	(0.15, 2.68)	0.53	(0.14, 1.93)
> 34 years	1.00				1.00		1.00	
Drug use	7.38	(2.27, 23.97)			5.95	(1.38, 25.77)	6.60	(1.57, 27.69)
Impulsivity	1.15	(0.81, 1.64)			1.02	(0.66, 1.58)	1.00	(0.67, 1.49)
History of depressive symptoms	4.21	(1.29, 13.71)			3.83	(1.06, 13.86)	5.46	(2.28, 13.05)
Relationship quality			0.66	(0.44, 0.99)	0.75	(0.47, 1.21)	0.70	(0.44, 1.12)
Employment status			0.38	(0.14, 1.02)	0.54	(0.12, 2.53)	0.59	(0.14, 2.47)
Previous/current incarceration			3.01	(1.08, 8.40)	2.51	(0.96, 6.56)	2.45	(0.90, 6.65)
Male child							5.60	(1.47, 21.33)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values

APPENDIX 4.1 (continued) - Logistic Regression Models of the Effects of Parenting Stress on Depressive Symptoms among African American Fathers in Year 5 of the Fragile Families Study with Varying Cut-Offs for High Parenting Stress (n= 965)

	Model 1: Individual Characteristics		Model 2: Contextual Characteristics		Model 3: Individual & Contextual Characteristics		Model 4: Individual, Contextual & Child Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
High Parenting Stress- Score >= 9	1.13	(0.05, 25.45)	1.57	(0.20, 12.31)	1.63	(0.09, 30.50)	2.25	(0.10, 51.70)
Age								
<26 years	2.51	(0.51, 12.27)			1.79	(0.36, 9.00)	1.63	(0.35, 7.66)
27-33 years	0.84	(0.22, 3.21)			0.62	(0.14, 2.80)	0.50	(0.12, 2.01)
> 34 years	1.00				1.00		1.00	
Drug use	7.37	(2.69, 20.22)			6.13	(1.69, 22.23)	7.05	(1.98, 25.08)
Impulsivity	1.15	(0.80, 1.65)			1.02	(0.65, 1.58)	0.99	(0.64, 1.52)
History of depressive symptoms	4.23	(1.28, 14.03)			3.80	(1.06, 13.63)	5.07	(1.93, 13.36)
Relationship quality			0.66	(0.44, 0.99)	0.75	(0.47, 1.21)	0.70	(0.43, 1.12)
Employment status			0.37	(0.14, 1.03)	0.53	(0.11, 2.58)	0.56	(0.12, 2.65)
Previous/current incarceration			2.83	(0.91, 8.77)	2.46	(0.88, 6.83)	2.18	(0.74, 6.40)
Male child							5.09	(1.53, 16.94)
High Parenting Stress- Score >= 8	1.53	(0.16, 14.76)	1.64	(0.36, 7.47)	1.88	(0.23, 15.13)	2.59	(0.26, 25.53)
Age								
<26 years	2.48	(0.52, 11.91)			1.79	(0.38, 8.54)	1.61	(0.36, 7.23)
27-33 years	0.84	(0.22, 3.20)			0.63	(0.14, 2.72)	0.50	(0.13, 1.96)
> 34 years	1.00				1.00		1.00	
Drug use	7.24	(2.59, 20.21)			6.01	(1.59, 22.66)	6.95	(1.91, 25.37)
Impulsivity	1.13	(0.77, 1.67)			1.01	(0.64, 1.58)	0.97	(0.62, 1.53)
History of depressive symptoms	4.42	(1.36, 14.30)			4.01	(1.14, 14.09)	5.43	(2.10, 14.06)
Relationship quality			0.66	(0.44, 0.99)	0.75	(0.46, 1.22)	0.70	(0.43, 1.13)
Employment status			0.37	(0.13, 1.04)	0.53	(0.11, 2.48)	0.55	(0.12, 2.52)
Previous/current incarceration			2.77	(0.81, 9.43)	2.45	(0.76, 7.97)	2.15	(0.68, 6.72)
Male child							5.31	(1.65, 17.06)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values

APPENDIX 4.1 (continued) - Logistic Regression Models of the Effects of Parenting Stress on Depressive Symptoms among African American Fathers in Year 5 of the Fragile Families Study with Varying Cut-Offs for High Parenting Stress (n= 965)

	Model 1: Individual Characteristics		Model 2: Contextual Characteristics		Model 3: Individual & Contextual Characteristics		Model 4: Individual, Contextual & Child Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
High Parenting Stress- Score >= 7	1.04	(0.14, 7.65)	1.33	(0.35, 5.08)	1.29	(0.19, 8.64)	1.52	(0.20, 11.65)
Age								
<26 years	2.52	(0.53, 12.00)			1.83	(0.39, 8.60)	1.72	(0.40, 7.37)
27-33 years	0.84	(0.21, 3.29)			0.63	(0.14, 2.78)	0.53	(0.14, 1.97)
> 34 years	1.00				1.00		1.00	
Drug use	7.36	(2.38, 22.74)			6.01	(1.49, 24.32)	6.77	(1.70, 26.89)
Impulsivity	1.15	(0.80, 1.66)			1.03	(0.66, 1.58)	1.00	(0.66, 1.54)
History of depressive symptoms	4.22	(1.28, 13.93)			3.81	(1.07, 13.52)	5.08	(2.05, 12.61)
Relationship quality			0.66	(0.44, 1.00)	0.75	(0.47, 1.22)	0.70	(0.44, 1.13)
Employment status			0.37	(0.13, 1.05)	0.54	(0.11, 2.65)	0.57	(0.12, 2.80)
Previous/current incarceration			2.74	(0.80, 9.46)	2.36	(0.76, 7.33)	2.06	(0.63, 6.72)
Male child							4.83	(1.60, 14.56)
High Parenting Stress- Score >= 6	1.34	(0.28, 6.43)	1.49	(0.42, 5.31)	1.58	(0.31, 8.05)	1.76	(0.33, 9.38)
Age								
<26 years	2.56	(0.59, 11.11)			1.91	(0.45, 8.07)	1.85	(0.49, 6.92)
27-33 years	0.83	(0.21, 3.27)			0.63	(0.15, 2.73)	0.55	(0.16, 1.94)
> 34 years	1.00				1.00		1.00	
Drug use	7.10	(2.61, 19.31)			5.80	(1.53, 22.00)	6.56	(1.74, 24.71)
Impulsivity	1.14	(0.80, 1.63)			1.01	(0.66, 1.56)	0.99	(0.64, 1.53)
History of depressive symptoms	4.41	(1.42, 13.66)			4.00	(1.19, 13.4)	5.29	(2.19, 12.75)
Relationship quality			0.66	(0.43, 0.99)	0.75	(0.47, 1.21)	0.69	(0.42, 1.13)
Employment status			0.37	(0.13, 1.03)	0.53	(0.11, 2.49)	0.57	(0.13, 2.63)
Previous/current incarceration			2.78	(0.80, 9.61)	2.39	(0.67, 8.46)	2.05	(0.59, 7.09)
Male child							4.84	(1.66, 14.08)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values

APPENDIX 4.1 (continued) - Logistic Regression Models of the Effects of Parenting Stress on Depressive Symptoms among African American Fathers in Year 5 of the Fragile Families Study with Varying Cut-Offs for High Parenting Stress (n= 965)

	Model 1: Individual Characteristics		Model 2: Contextual Characteristics		Model 3: Individual & Contextual Characteristics		Model 4: Individual, Contextual & Child Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
High Parenting Stress- Score ≥ 5	1.08	(0.27, 4.29)	1.55	(0.52, 4.63)	1.31	(0.28, 6.04)	1.28	(0.28, 5.81)
Age								
<26 years	2.52	(0.55, 11.59)			1.85	(0.42, 8.21)	1.76	(0.44, 7.02)
27-33 years	0.84	(0.23, 3.13)			0.65	(0.16, 2.61)	0.56	(0.16, 1.88)
> 34 years	1.00				1.00		1.00	
Drug use	7.27	(2.43, 21.71)			5.76	(1.34, 24.73)	6.54	(1.45, 29.51)
Impulsivity	1.15	(0.82, 1.62)			1.03	(0.68, 1.56)	1.01	(0.67, 1.53)
History of depressive symptoms	4.24	(1.28, 14.02)			3.83	(1.09, 13.46)	5.03	(2.03, 12.47)
Relationship quality			0.65	(0.43, 0.97)	0.75	(0.46, 1.22)	0.69	(0.41, 1.15)
Employment status			0.36	(0.13, 1.02)	0.53	(0.11, 2.67)	0.58	(0.12, 2.85)
Previous/current incarceration			2.72	(0.78, 9.46)	2.32	(0.65, 8.23)	2.00	(0.57, 7.05)
Male child							4.68	(1.62, 13.52)
High Parenting Stress- Score ≥ 4	2.91	(0.63, 13.59)	2.90	(0.90, 9.41)	2.32	(0.47, 11.48)	1.73	(0.41, 7.31)
Age								
<26 years	2.13	(0.50, 9.06)			1.69	(0.39, 7.34)	1.70	(0.41, 7.05)
27-33 years	0.71	(0.18, 2.82)			0.57	(0.13, 2.56)	0.53	(0.14, 2.01)
> 34 years	1.00				1.00		1.00	
Drug use	6.14	(2.25, 16.73)			5.34	(1.35, 21.08)	6.29	(1.56, 25.41)
Impulsivity	1.09	(0.76, 1.55)			1.01	(0.67, 1.51)	1.00	(0.67, 1.50)
History of depressive symptoms	4.69	(1.56, 14.08)			3.96	(1.19, 13.23)	4.89	(1.85, 12.90)
Relationship quality			0.68	(0.46, 1.01)	0.77	(0.49, 1.22)	0.70	(0.43, 1.15)
Employment status			0.44	(0.15, 1.31)	0.58	(0.14, 2.51)	0.62	(0.15, 2.68)
Previous/current incarceration			2.31	(0.63, 8.49)	2.03	(0.47, 8.72)	1.84	(0.46, 7.32)
Male child							4.39	(1.56, 12.31)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values

APPENDIX 4.1 (continued) - Logistic Regression Models of the Effects of Parenting Stress on Depressive Symptoms among African American Fathers in Year 5 of the Fragile Families Study with Varying Cut-Offs for High Parenting Stress (n= 965)

	Model 1: Individual Characteristics		Model 2: Contextual Characteristics		Model 3: Individual & Contextual Characteristics		Model 4: Individual, Contextual & Child Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
High Parenting Stress- Score ≥ 3	4.12	(0.42, 40.35)	3.80	(0.66, 21.94)	3.25	(0.37, 28.85)	2.79	(0.39, 19.94)
Age								
<26 years	2.24	(0.57, 8.79)			1.73	(0.44, 6.76)	1.70	(0.43, 6.71)
27-33 years	0.74	(0.20, 2.73)			0.59	(0.15, 2.33)	0.54	(0.15, 1.90)
> 34 years	1.00				1.00			
Drug use	6.37	(2.37, 17.12)			5.66	(1.52, 21.11)	6.38	(1.67, 24.35)
Impulsivity	1.11	(0.80, 1.55)			1.02	(0.69, 1.51)	1.00	(0.67, 1.49)
History of depressive symptoms	4.57	(1.53, 13.64)			3.93	(1.15, 13.49)	4.77	(1.83, 12.45)
Relationship quality			0.69	(0.45, 1.04)	0.79	(0.49, 1.29)	0.71	(0.43, 1.19)
Employment status			0.43	(0.15, 1.21)	0.62	(0.15, 2.62)	0.66	(0.15, 2.79)
Previous/current incarceration			2.43	(0.67, 8.84)	2.20	(0.58, 8.38)	1.90	(0.51, 7.09)
Male child							4.51	(1.51, 13.46)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values

Appendix 5.1- Logistic Regression Models of the Effects of Parenting Stress on Poor/Fair SRH among African American Fathers in Year 5 of the Fragile Families Study with Varying Cut-Offs for High Parenting Stress (n=965)

	Model 1: Individual Characteristics		Model 2: Individual & Contextual Characteristics		Model 3: Individual, Contextual & Child Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI
High Parenting Stress- Score ≥ 11 (n=21)	16.56	(0.02, 15752.53)	21.33	(0.01, 50623.01)	13.39	(0.01, 21671.88)
Age						
< 26 years	4.70	(1.50, 14.72)			8.90	(2.15, 36.77)
27-33 years	1.00				1.00	
> 34 years	6.22	(2.65, 14.60)			4.51	(1.99, 10.21)
Smoker	2.80	(0.87, 9.01)			2.95	(1.01, 8.64)
Number of children			1.37	(1.01, 1.85)	1.39	(1.00, 1.93)
Multi-partner fertility			2.47	(0.73, 8.28)	2.82	(0.78, 10.22)
High Parenting Stress- Score ≥ 10 (n=38)	24.63	(4.40, 137.95)	29.67	(3.64, 241.57)	20.83	(3.29, 131.67)
Age						
< 26 years	4.20	(1.24, 14.16)			6.72	(1.84, 24.52)
27-33 years	1.00				1.00	
> 34 years	6.95	(2.87, 16.81)			4.46	(1.94, 10.27)
Smoker	2.83	(0.96, 8.31)			2.97	(1.06, 8.34)
Number of children			1.39	(1.06, 1.82)	1.37	(1.04, 1.80)
Multi-partner fertility			2.43	(0.80, 7.40)	2.46	(0.74, 8.21)
High Parenting Stress- Score ≥ 9 (n=69)	12.70	(3.09, 52.16)	12.98	(2.11, 79.74)	10.84	(2.63, 44.70)
Age						
< 26 years	5.74	(1.40, 23.43)			9.55	(2.07, 44.09)
27-33 years	1.00				1.00	
> 34 years	9.70	(3.14, 29.92)			5.96	(2.27, 15.67)
Smoker	3.09	(1.03, 9.22)			3.22	(1.16, 8.92)
Number of children			1.32	(0.96, 1.80)	1.33	(0.97, 1.82)
Multi-partner fertility			3.36	(0.88, 12.88)	3.17	(0.85, 11.80)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values

Appendix 5.1 (continued) - Logistic Regression Models of the Effects of Parenting Stress on Poor/Fair SRH among African American Fathers in Year 5 of the Fragile Families Study with Varying Cut-Offs for High Parenting Stress (n=965)

	Model 1: Individual Characteristics		Model 2: Individual & Contextual Characteristics		Model 3: Individual, Contextual & Child Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI
High Parenting Stress- Score ≥ 8 (n= 112)	6.32	(1.06, 37.53)	6.14	(0.93, 40.43)	5.20	(0.93, 28.93)
Age						
< 26 years	5.08	(1.27, 20.33)			9.14	(1.90, 44.00)
27-33 years	1.00				1.00	
> 34 years	8.46	(3.10, 23.11)			5.73	(2.48, 13.24)
Smoker	2.99	(0.96, 9.33)			3.14	(1.11, 8.90)
Number of children			1.33	(0.96, 1.83)	1.34	(0.96, 1.88)
Multi-partner fertility			3.03	(0.76, 12.15)	3.02	(0.80, 11.45)
High Parenting Stress- Score ≥ 7 (n= 179)	4.46	(0.80, 24.92)	3.57	(0.59, 21.51)	3.48	(0.69, 17.54)
Age						
< 26 years	4.81	(1.31, 17.66)			9.04	(2.01, 40.68)
27-33 years	1.00				1.00	
> 34 years	8.57	(3.28, 22.38)			6.15	(2.67, 14.19)
Smoker	3.43	(1.02, 11.59)			3.63	(1.11, 11.90)
Number of children			1.31	(0.94, 1.82)	1.33	(0.94, 1.88)
Multi-partner fertility			2.93	(0.76, 11.22)	3.02	(0.81, 11.25)
High Parenting Stress- Score ≥ 6 (n= 250)	3.04	(0.57, 16.23)	2.22	(0.40, 12.40)	2.19	(0.44, 11.04)
Age						
< 26 years	5.15	(1.43, 18.57)			9.01	(2.12, 38.33)
27-33 years	1.00				1.00	
> 34 years	8.46	(3.19, 22.38)			5.66	(2.41, 13.25)
Smoker	3.52	(1.03, 12.05)			3.80	(1.10, 13.15)
Number of children			1.30	(0.92, 1.83)	1.30	(0.89, 1.91)
Multi-partner fertility			3.08	(0.80, 11.93)	3.34	(0.82, 13.65)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values

Appendix 5.1 (continued) - Logistic Regression Models of the Effects of Parenting Stress on Poor/Fair SRH among African American Fathers in Year 5 of the Fragile Families Study with Varying Cut-Offs for High Parenting Stress (n=965)

	Model 1: Individual Characteristics		Model 2: Individual & Contextual Characteristics		Model 3: Individual, Contextual & Child Characteristics	
	OR	95% CI	OR	95% CI	OR	95% CI
High Parenting Stress- Score >= 5 (n= 349)	1.95	(0.39, 9.83)	1.47	(0.29, 7.36)	1.49	(0.32, 6.94)
Age						
< 26 years	4.32	(1.30, 14.40)			8.46	(2.06, 34.80)
27-33 years	1.00				1.00	
> 34 years	7.83	(3.00, 20.49)			5.48	(2.30, 13.06)
Smoker	3.87	(1.03, 14.60)			4.12	(1.08, 15.72)
Number of children			1.30	(0.93, 1.83)	1.31	(0.90, 1.92)
Multi-partner fertility			3.26	(0.81, 13.09)	3.59	(0.86, 14.95)
High Parenting Stress- Score >= 4 (n= 612)	3.39	(0.69, 16.65)	2.29	(0.55, 9.57)	2.63	(0.56, 12.26)
Age						
< 26 years	4.28	(1.32, 13.95)			8.48	(2.05, 35.05)
27-33 years	1.00				1.00	
> 34 years	9.90	(3.45, 28.35)			6.61	(2.55, 17.11)
Smoker	3.96	(1.10, 14.20)			4.10	(1.09, 15.49)
Number of children			1.28	(0.91, 1.80)	1.28	(0.88, 1.87)
Multi-partner fertility			3.47	(0.75, 15.97)	3.65	(0.79, 16.76)
High Parenting Stress- Score >= 3 (n= 713)	2.96	(0.45, 19.71)	1.99	(0.37, 10.64)	2.21	(0.42, 11.72)
Age						
< 26 years	4.18	(1.27, 13.75)			8.44	(2.05, 34.64)
27-33 years	1.00				1.00	
> 34 years	9.03	(3.31, 24.68)			6.10	(2.42, 15.38)
Smoker	4.14	(1.11, 15.40)			4.04	(1.07, 15.22)
Number of children			1.28	(0.91, 1.80)	1.28	(0.88, 1.86)
Multi-partner fertility			3.57	(0.77, 16.53)	3.79	(0.85, 16.83)

Note: OR= Odds Ratio; 95% CI= 95% Confidence Interval; Weighted values

Yolanda E. Klemmer | Curriculum Vitae

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EDUCATION

- Doctor of Public Health Student*- Health, Behavior and Society **Expected Spring 2019**
Johns Hopkins University, Baltimore, Maryland
Dissertation title: “Examining The Relationship Between Parenting Stress, Depressive Symptoms and Self-Rated Health among African American Fathers”
Advisor: Roland J. Thorpe, Jr., PhD
- Master of Public Health* - International Health and Development **Aug 2009**
Tulane University, New Orleans, Louisiana
- Master of Science in Nursing*, Nurse-Midwifery Certificate **Dec 1996**
University of Pennsylvania, Philadelphia, Pennsylvania
- Bachelor of Science in Nursing* **May 1992**
University of Michigan, Ann Arbor, Michigan

RESEARCH EXPERIENCE

- Research Assistant* **Jan 2016- April 2018**
Project: Health Enterprise Zone (HEZ) External Evaluation
Johns Hopkins University Center for Health Care Disparities Solutions, Baltimore, Maryland
- Ensured Institutional Review Board (IRB) compliance by updating study documents
 - Served as the liaison between the evaluation team and the HEZ sites to coordinate site visits and qualitative interviews
 - Completed field note transcriptions and analyzed and summarized qualitative findings for inclusion in progress reports
 - Assisted in writing and editing progress reports for submission to the State of Maryland (Maryland Community Health Resources Commission and the Department of Health and Mental Hygiene)
- Research Assistant* **June-Aug 2008**
Project: Prevention of Accidental Deaths due to Multi-Drug Toxicity
Tulane University, New Orleans, Louisiana
- Performed literature review to assess problem scope and gaps in knowledge
 - Designed qualitative data collection tool
 - Collected qualitative data and composed summary of findings

PROFESSIONAL SERVICE

Certified Nurse-Midwife

March 2010-present

Unity Health Care, Washington, D.C.

- Perform comprehensive history and physical evaluations, establish diagnoses, treatment plans and follow-up care, and provide health education for women with diverse social and medical risk factors seeking obstetrical and gynecological care
- Led Patient Care Task Force Group in the successful development of patient education materials and translation of various materials into Spanish, French, Mandarin, and Amharic
- Worked jointly with other QI Task Force members to develop an OB/GYN Peer Review Tool and determined reproductive health priorities for evaluating various patient groups and health outcomes

Strong Start Program Coordinator

Nov 2014-May 2017

- Improved data capture of delivery outcomes and patient education within the electronic medical record by working with the Informatics Team to create a system to capture structured data
- Interviewed, trained, and managed five Prenatal Care Associates covering 9 clinical sites
- Developed system for collecting study participant data and managed database for over 1,100 participants
- Prepared and submitted Quarterly Reports to the District of Columbia's Project Director for submission to the Centers for Medicare and Medicaid Services

Intern, Grants Management Department

Feb-March 2017

- Prepared an awarded \$30,000 Delta Dental grant to extend dental services within the health centers' current dental program
- Completed and prepared for submission a budget modification for the Transition of Care Program

LEADERSHIP & TEACHING EXPERIENCE

Discussion Leader and Marriage Hub Leader

Fall 2013-present

Move Church, Woodbridge VA

- Co-lead small group discussions for couples on topics related to marriage
- Co-lead church marriage ministry. Assist with identifying, coordinating, and implementing marriage related events. Serve as point of contact for married couples.

Volunteer Teacher

July 2004-June 2005

Visions in Action, Tanzania, East Africa

- Taught English Literature and Life Skills at a secondary school
- Tutored young Tanzanian adults in English

Volunteer Tutor

2007

Indianapolis Public Schools, Indianapolis, Indiana

- Worked one on one and in small groups to tutor elementary students in primary subjects

CONFERENCE/WORKSHOP PRESENTATIONS

July 2009

Public Health Intern

EngenderHealth-CHAMPION Project, Tanzania, East Africa

- Attended EngenderHealth's Global Monitoring & Evaluation Workshop held in Nairobi, Kenya and prepared and co-presented a poster presentation